DOCUMENT RESUME

ED 290 042 CE 049 427

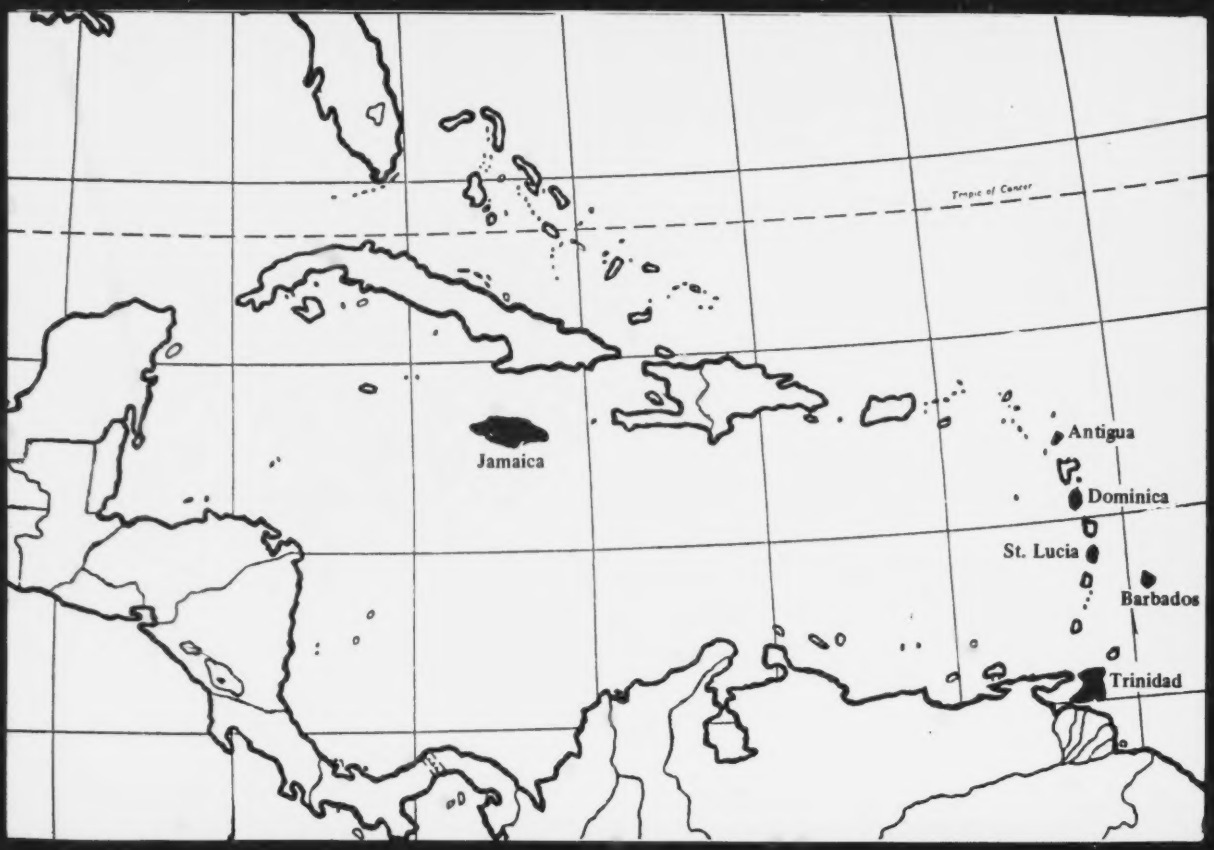
AUTHOR	Lalor, Gerald C.; Marrett, Christine
TITLE	University of the West Indies Distance Teaching Experiment (UWIDITE). Report.
INSTITUTION	University of the West Indies, Mona (Jamaica).
PUB DATE	Nov 86
NOTE	94p.; For a related report, see ED 240 993.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Adult Education; Developing Nations; *Distance Education; Foreign Countries; Futures (of Society); *Information Networks; Instructional Materials; *Interactive Video; Outcomes of Education; Postsecondary Education; *Program Content; Program Costs; Program Effectiveness; *Regional Programs; Teaching Methods; *Telecommunications; Teleconferencing
IDENTIFIERS	*Caribbean; University of the West Indies (Jamaica)

ABSTRACT

Since March 1983, the University of the West Indies has been conducting a distance teaching experiment that links its three campuses and the Extra Mural Centres in Antigua, Dominica, and St. Lucia by telecommunications. The network is used for interactive distance teaching and other types of teleconferences. A variety of modern audio and video equipment is used in the program, including Pulsecom telephone termination equipment, teleconferencing equipment, telephone handsets, scramblers (to ensure confidentiality), slow-scan television, videocassette recording and playback facilities, and telewriters. Traditional print instructional materials (booklets and charts) are also used. Courses are primarily developed by their presenters, although consultants and researchers provide assistance when necessary. The program does not insist that teachers confine themselves to a single teaching method; however, the guiding principle of the program is that maximum use be made of the program's interactive potential. It is thus suggested that teachers avoid talking for more than 10-15 minutes without a break for discussions. The following types of programs are offered: administration, outreach programs, intercampus assistance for undergraduate programs, training of science technicians, agriculture, health, social sciences and law, and education. The outreach programs have included an arts symposium and a series on Caribbean art forms. Response to the program has been very encouraging, and it is hoped that the program will be expanded to serve more of the region's 14 countries (6 are currently served). (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED290042



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

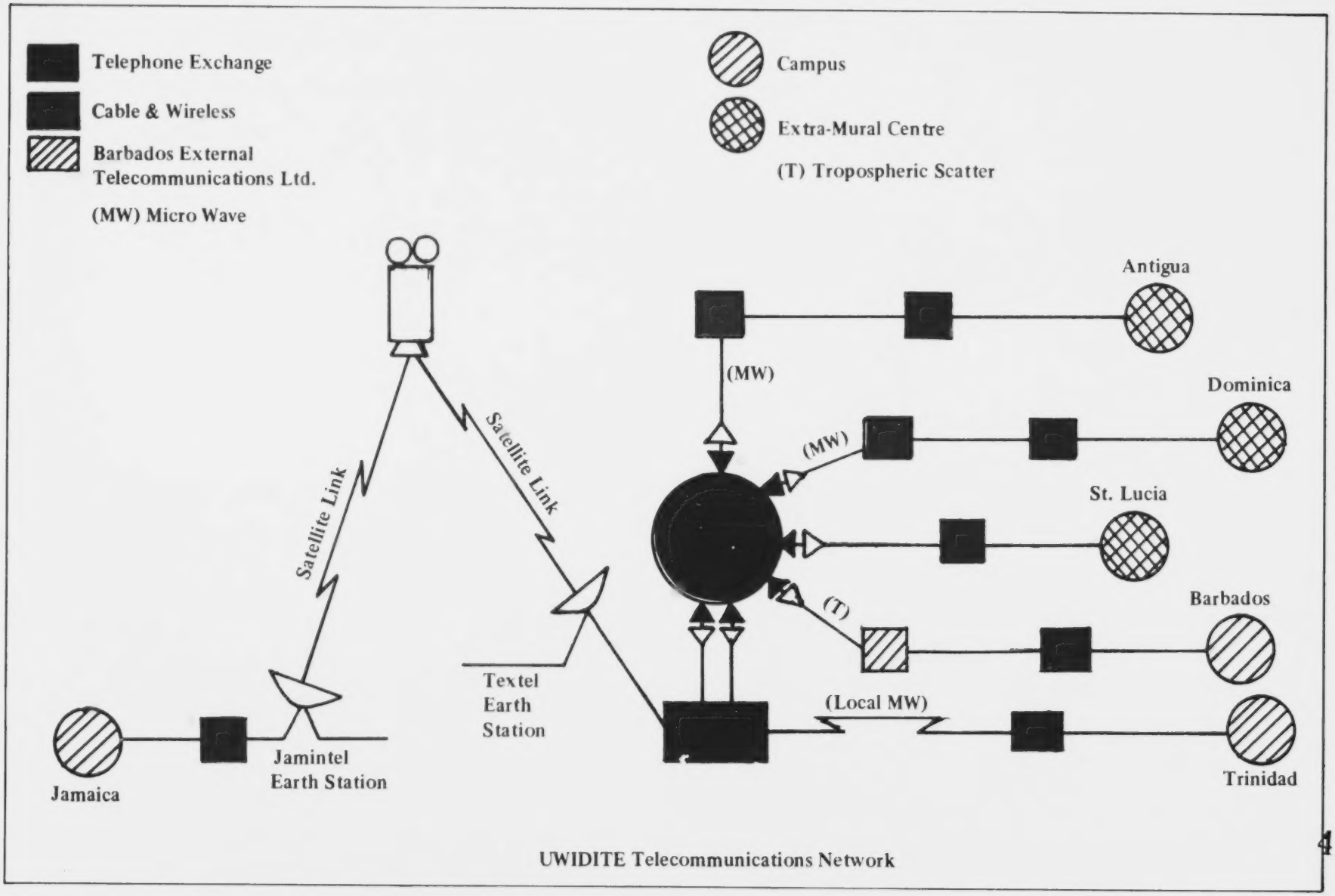
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

G C Lalor

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."



UWIDITE Telecommunications Network

REPORT ON
THE UNIVERSITY OF THE WEST INDIES
DISTANCE TEACHING EXPERIMENT

GERALD C. LALOR

and

CHRISTINE MARRETT

SENATE HOUSE
UNIVERSITY OF THE WEST INDIES
MONA
KINGSTON 7
JAMAICA

November 1986

ACKNOWLEDGEMENTS

Scores of persons have contributed directly and indirectly to the success of UWIDITE. Nevertheless, a few names must be singled out. The Honorable Charles Maynard, former Minister of Education for Dominica, and Sir Allen Lewis, the Chancellor of the University gave enormous support from the earliest days. Their interest, consideration, and advice were of the greatest value.

Without Dr. Clifford Block of the Bureau of Science and Technology of the United States Agency for International Development, Washington, it is likely that the project would never even have been conceived. The University of the West Indies, like several other institutions world-wide, owes a considerable debt of gratitude to this gentleman who by his foresight, enthusiasm, understanding, and persuasion, has played so large a part in the development of distance teaching in the Third World.

And finally the late Vice-Chancellor, the Hon. Dr. A.Z. Preston, who gave unstinting support always and did so much to move the system towards maturity, repeatedly stating that "This is the sort of thing a University is all about."

FOREWORD

Since March 1983, the University of the West Indies has been conducting a distance teaching experiment, UWIDITE, which links its three campuses and the Extra Mural Centres in Antigua, Dominica and St. Lucia by telecommunications. The network is used for interactive distance teaching and other types of teleconferences.

The first three years of the project (May 1982 - December 1985) were funded largely by a grant from the United States Agency for International Development. At the end of this period, the draft of this report was prepared and widely circulated for review and comment.

On April 1 & 2, 1987, Ministers of Education or their representatives from the countries which support the University of the West Indies, representatives of the UWI, regional and international organizations, met at the UWI Mona campus, Jamaica. The objectives of the conference were to:

- receive and discuss the UWIDITE report
- receive and discuss country papers
- discuss an expansion of the UWIDITE system with particular reference to the following matters:
  - technical
  - funding
  - programming.

The resolutions arising out of this conference are given below.

UWIDITE CONFERENCE, APRIL 1 & 2, 1987

RESOLUTIONS

- The Meeting endorses the efforts of the University of the West Indies to continue to develop distance teaching in the Commonwealth Caribbean and, where possible, in the wider Caribbean Basin and records its appreciation of the successes of the UWIDITE team.

- The Meeting supports the expansion of the UWIDITE programme to additional sites and in additional programme areas and agrees that all efforts should be made to obtain both the funding and technology needed for the improvement of distance education in the Caribbean.

- The Meeting appreciates that appropriate funding mechanisms, perhaps along the lines of economic costs, will have to be developed. In the light of this, Governments are asked to review their priority needs for distance education.

- Governments are further asked to support and facilitate the University's efforts to obtain funds from international funding institutions.

- The Meeting notes and endorses further development of collaboration with the University of the Virgin Islands.

A number of specific recommendations follow:

1) Governments should study their comprehensive needs for training to select those which can best be met through UWIDITE.

2) The UWI should promote the integration of interactive distance teaching sessions on the UWIDITE network with other forms of distance teaching.

3) Governments should vire funds, for example from scholarship funds, to meet economic costs of distance learning students. Governments and regional organizations on behalf of Governments should also actively seek funds from agencies in support of UWIDITE.

4) Governments and other employers should consider the possibility of day release for students to attend classes at UWIDITE Centres.

5) The UWI should encourage the use of human and material resources within non-campus countries.

6) The UWI should explore the possibility of using the summer period to teach some of the university level courses on the UWIDITE network.

7) The UWI in collaboration with national Governments should pursue the development of intra-island networks.

8) The UWI should convene regular meetings to review progress towards the development of effective distance teaching strategies.

9) The UWI in consultation with Governments should explore the possibility of collaboration in the production of print and non-print materials in support of UWIDITE programmes.

10) All telecommunication facilities existing in UWI (campuses and non-campus countries) should be rationalized.

CONTENTS

CHAPTER	TITLE	PAGE
I	INTRODUCTION AND BACKGROUND	1
II	UNIVERSITY OF THE WEST INDIES DISTANCE TEACHING EXPERIMENT (UWIDITE)	12
III	TEACHING MATERIALS AND METHODS	25
IV	PROGRAMMES	28
V	THE COST OF UWIDITE	67
VI	FUTURE DEVELOPMENTS	69
VII	THE RESPONSE TO UWIDITE	72
VIII	CONCLUSIONS	77
APPENDICES		81
1.	List of Print Units and Video Cassettes Produced by UWIDITE	81
2.	List of Tables and Figures	83

CHAPTER I

INTRODUCTION AND BACKGROUND

The English-speaking Caribbean extends from Belize on the Central American mainland, across to Jamaica and the Bahamas Islands, then through the chain of islands which delineates the Caribbean Sea from the Atlantic Ocean - from the British Virgin Islands at the northern tip of the chain, to Barbados in the south east, on to Trinidad and Tobago just off the Venezuelan coast - and further south to Guyana on the mainland of South America.

The island countries are small and many of them are densely populated although the absolute sizes of the populations are small. Some indicators are given in Table 1. The total population of the region is only about 5.6 million.

Table 1. Some Country Indicators for the English-speaking Caribbean.

Country	Area (Sq.Mls.)	1982 Population (Thousands)	1982 Per Capita Income (US$)
Anguilla	35	7	800
Antigua/Barbuda	171	77	1,520
Bahamas	5,380	219	4,200
Barbados	166	250	3,780
Belize	8,867	152	1,740
B.Virgin Islands	59	12	3,700
Cayman Islands	100	18	9,400
Dominica	290	74	850
Grenada	133	106	890
Guyana	83,000	920	428
Jamaica	4,411	2,228	1,160
Montserrat	39	12	2,400
St.Kitts/Nevis	103	45	1,200
St.Lucia	238	124	1,020
St.Vincent	150	100	740
Trinidad/Tobago	1,980	1,200	5,200
Turks/Caicos Islands	166	8	2,000

There are substantial distances between some of the countries: Nassau, Bahamas, is 950 miles from Belize City, Belize, and some 1,800 miles from Port of Spain, Trinidad. Transportation between the countries is reasonably good but can be time consuming, even by air. A trip from Kingston, Jamaica, to Port of Spain, Trinidad, from the time of check-in for departure to completion of customs formalities on arrival, will often take as long as seven hours and there are no direct flights connecting

any of the countries with Belize or the Bahamas.

Recent years have been difficult for most of the countries. Jamaica's largest industry, bauxite/alumina, has diminished considerably in size and the severe economic consequences of this, and other problems, have been reflected in the decline in value of the Jamaican dollar. In 1968 when Jamaica changed its currency from sterling to dollars, the value was US$1 = J$0.9; the current value is US$1 = J$5.5. There is now much concern in Trinidad for the near term future as the price of, and the demand for oil, have both fallen. Towards the end of 1985, Trinidad devalued its currency from US$1 = TT$2.40 to US$1 = TT$3.60.

With some petroleum and a good tourist trade Barbados has suffered less than most of the others, but is not unconcerned. Similarly, the Bahamas and the Cayman Islands are certainly holding their own. The other countries have not been having an easy time. Falling profits in the agricultural sector have been a burden and, despite heroic efforts, it is becoming no easier to meet many of the basic needs of the increasing populations. Though the scale and severity of the problems may differ from country to country, it is clear that the Caribbean is once again a troubled region.

The English-speaking Caribbean countries share a rather similar culture largely due to the history of colonization by the English, which gave rise to similar educational systems and to a common heritage of most institutions. These similarities and the existence of a number of regional institutions provide a good basis for an experiment in distance teaching. The increasing cost of providing better services and education for a growing population - and therefore the need for sharing - is good reason to assess the contribution which telecommunications may make in education and public service.

CARIBBEAN EDUCATIONAL SYSTEMS

Children in the Commonwealth Caribbean enter the formal education system at about six years of age. After five years at the primary level there is an examination, known as the eleven plus or common entrance, which is the sieve for selection to the "academic" stream of the secondary level. Another five years bring the student to the Ordinary level examinations of the Universities of Cambridge, London or, more recently, the examinations of the Caribbean Examinations Council. These are school leaving examinations for most of the students who then seek employment, entry to the tertiary system, or specialized training. Table 2 contains examples of admission requirements to the tertiary system.

Table 2. Examples of Normal Admission Requirements of Tertiary Institutions

INSTITUTIONS	ADMISSION REQUIREMENTS
Teacher Training Colleges	Requirements vary somewhat but are generally: 5 CXC or GCE 'O' levels (one must be in subject of specialization)
College of Arts, Science and Technology, (C.A.S.T.), Jamaica	Requirements vary with programme but generally: 4 CXC or GCE 'O'levels (must include English and Maths)
College of Agriculture, Jamaica	4 CXC or GCE 'O' levels (must include English, Maths, and one Natural Science)
John B. Donaldson Technical Institute, Trinidad	Requirements vary with programme but generally: 4 CXC or GCE 'O' levels
Barbados Community College	4 CXC or GCE 'O' levels in one sitting or 5 if more than one sitting
College of the Bahamas	5 CXC or GCE 'O'levels

CXC = Caribbean Examinations Council; GCE 'O' level = General Certificate of Education, Ordinary Level.

About one fifth of the candidates who have performed well at the 'O' level remains in school to complete the 'A' (Advanced) level. This is a much more specialized two year course aimed largely at University admission.

THE UNIVERSITY OF THE WEST INDIES

The University of the West Indies (UWI) is one of only two surviving regional universities; the other is the University of the South Pacific. UWI is the successor institution to the University College of the West Indies (UCWI) which began teaching in 1948 in special relationship with the University of London. UCWI was originally seen as a small, elite, and completely residential institution serving the needs of the British West Indies for higher education - mainly for medical doctors and teachers of the arts and sciences. In 1948 the first undergraduates - 33 medical students - entered the Mona campus, Jamaica. In the following year the Faculty of Natural Sciences admitted its first students and, though there have been at various times constraints on the numbers of admissions, the growth of student numbers has been steady. Student numbers are shown in Table 3. The breakdown by campus for 1984/85 was Mona - 5188; St. Augustine - 3197; Cave Hill - 1641.

Table 3. Student Numbers at UWI

Year	Men	Women	Total
1948/49	23	10	33
1951/52	152	53	205
1954/55	275	109	384
1957/58	354	201	555
1960/61	657	320	977
1963/64	1,465	722	2,187
1966/67	2,047	1,212	3,259
1969/70	2,914	1,713	4,627
1972/73	3,739	2,587	6,326
1975/76	3,994	3,263	7,257
1978/79	4,477	4,042	8,519
1979/80	4,762	4,224	8,986
1980/81	4,684	4,374	9,058
1981/82	4,830	4,713	9,543
1982/83	4,704	4,869	9,573
1983/84	4,844	5,182	10,026
1984/85	5,007	5,565	10,572

The former Imperial College of Tropical Agriculture at St. Augustine, Trinidad, became the site of the second campus of UCWI in 1960. UCWI became the fully fledged University of the West Indies in 1962, and the third campus, Cave Hill in Barbados, was established in 1963. Guyana withdrew as one of the participating countries in 1963 and founded its own national university.

Faculties

UWI has eight faculties. These are: Agriculture, Arts and General Studies, Education, Engineering, Law, Natural Sciences,

Medical Sciences, and Social Sciences. There is some duplication of faculties across the campuses but Agriculture and Engineering are exclusively in Trinidad and the second and third years of the three year undergraduate law degree are in Barbados. The first year of law is taught on all campuses and also at the University of Guyana. The Medical School is primarily in Jamaica but clinical training is also done in Barbados and in Trinidad, and a new medical school is being developed in Trinidad.

Matriculation Requirements

The normal matriculation requirements for admission to undergraduate degree programmes are three CXC or GCE 'O' level subjects and two GCE 'A' level subjects or their equivalents; or two CXC or GCE 'O' level subjects and three GCE 'A' levels or their equivalents. There are other matriculation requirements, for example for mature students. The Matriculation Board assesses equivalents.

Undergraduate Programmes

The undergraduate programmes at UWI in general require three years of study after the normal 'A' level matriculation although some faculties offer a fourth, preliminary, year. Medicine is a five year programme followed by two years of internship.

Postgraduate Programmes

All the faculties prepare students for higher degrees including the Ph.D. Some masters degrees are by course work only but others involve a considerable research element. Most postgraduate students are from the region but some faculties attract students from many other countries.

Extra Mural Centres

The Extra Mural Centres are the focal points for the University in the non-campus countries. The Centres are integral parts of the Department of Extra Mural Studies, which maintains the largest single outreach programme of the University. The Centres are managed by Resident Tutors, whose responsibilities include the development and maintenance of educational programmes appropriate to the needs of each particular country, especially in adult education. They provide liaison and feedback between the University, Governments, and the respective communities.

Restructuring of UWI

In response to the demand of the various Governments to make the institution "more responsive to the needs of the territories", UWI was recently restructured to provide greater autonomy for each of the campuses. Since October 1984 the University has been divided administratively into four interlocking parts: The Centre and three Campuses. The overall responsibility still lies in the hands of the University Council, the Senate, and their committees, as well as the University Grants Committee which has the responsibility for providing funds; but there are now, for example, Campus Councils and Campus Grants Committees.

The non-campus countries, particularly those in the Eastern Caribbean, have been pressing for greater benefits from the regional University. These include on the spot assistance with the development of their tertiary educational systems. High on their priority list is the provision of physical plant and equipment. The University therefore has created an Office of University Services, headed by a Pro-Vice-Chancellor at the Cave Hill campus. This Office has the responsibility to attempt to meet agreed needs of the Eastern Caribbean states. It is presently funded largely by a grant from the Ford Foundation.

The Financing of UWI

The University is funded through a University Grants Committee and a Campus Grants Committee for each of the three campuses. Until recently, the per capita costs of students were averaged across faculties and campuses but as from 1984 each campus cost is calculated separately. These costs do not include identifiable expenditures on research or special projects which are funded separately. The estimated costs for undergraduate degrees, certificates, and diplomas are presented in Table 4. The costs are given in the currency of each host country.

The economic cost is the total cost to the University of educating one full-time equivalent student in a particular programme for one year. This does not, of course, include the students' maintenance costs, books, etc., which can be quite considerable.

UWI is being asked to cope with a great many new demands now and in the years ahead but, unfortunately, the level of funding under which the University is operating does not take into account many of the demands. Clearly UWI is entering a period during which the demands being made on its staff and systems will be multiplied enormously. It may well be that telecommunications will help to extend the current resources and make the tasks easier.

Table 4. Estimated Costs per Student (Economic Costs) by Faculty and Campus for 1985/86.

Faculty	Estimated Economic Cost
	MONA Jamaica Dollars
Arts & Soc.Sc.	12,700
Education	13,700
Law	15,100
Natural Scs.	16,500
Med.Pre-Clin.	21,000
Med.Clin.	31,500
	ST.AUGUSTINE Trinidad & Tobago Dollars
Arts & Soc.Sc.	24,500
Education	25,000
Law	30,000
Nat. Scs.	31,000
Med.Clin.	60,000
Agriculture	45,000
Engineering	42,600
	CAVE HILL Barbados Dollars
Arts & Soc.Sc.	12,000
Education	15,000
Law	14,500
Nat.Scs.	17,000
Med. Clin.	33,000

UWI's INVOLVEMENT IN TELECONFERENCING

UWI began experimenting with telecommunications in 1978 as one possible way of meeting the region's pressing demands for education. During the period up to December 1985 the main support funding and technical assistance was provided by the Science and Technology Bureau of AID, Washington.

Project Satellite

The introduction was Project Satellite, an experiment in 1978 which lasted for two months. It linked the Mona and Cave Hill campuses via two NASA satellites in the Applications Technology Series: ATS-6 for outgoing full-motion video from Jamaica and ATS-3 for return audio. The Extra Mural Centre in St. Lucia joined in for the final two weeks, during which two major seminars centered in St. Lucia were shared with the other sites.

The programmes included discussions on rural medical care, agricultural research, the nurse practitioner programme, family-life education in schools, the education of the deaf, early childhood education, and University administration. An audio conference was held to demonstrate teleconferencing over extremely large distances: the Mona and Cave Hill campuses held exchanges with PEACESAT sites in Souva, Fiji; Niue, Rarotonga, Cook Islands; Honolulu, Hawaii; Tarawa, Kiribati; Wellington, New Zealand; and Santa Cruz, California. The link between the ATS-1 satellite used across the Pacific and ATS-3 used by UWI was via Denver, Colorado.

There was a total of 27 programmes in colour of 34.5 hours duration. These were organized and produced by UWI staff with the collaboration of several institutions including the Jamaica Broadcasting Corporation, the Goddard Space Centre, the University of Miami, and the Solar Energy Research Centre in Golden, Colorado.

This experiment was well received and the project report recommended an early study to examine the possible usefulness of a University telecommunications network for education, outreach, and public service. The Project Satellite report itself attracted much attention and funds were obtained from USAID to carry out the recommended study - The Caribbean Regional Communications Study (CARCOST).

Caribbean Regional Communications Study (CARCOST)

This was a feasibility study to determine whether and how interactive distance teaching and teleconferencing could contribute to education and public service in the Caribbean.

CARCOST allowed UWI staff to visit several distance teaching projects and to carry out studies, with the aid of consultants as needed, on selected Caribbean problems and possible applications to them of some of the present day communications technologies. Demonstrations of freeze-frame television and facsimile transmission of documents were carried out. A two month long experiment on distance teaching between three sites in Jamaica was undertaken using the normal telephone service. During the CARCOST study close interaction was maintained with other regional institutions and with Ministries of Agriculture, Education, and Health. The report concluded that in the Caribbean states it hardly seemed possible, if limited to "conventional methods", to expect real advances in many of the problem areas in the near future. This conclusion was based on:

(1) the small scale of even urgent needs in countries of small populations;

(2) the isolation of the countries;

(3) shortages of trained personnel and the severe lack of funds for present needs, let alone future development.

The report suggested that the appropriate use of telecommunications, coupled with the willingness of the countries to share so that needs could be aggregated and met in a more economical manner, might be a way forward. The draft report was discussed with Ministers of Education and their nominees and received their full support.

The Caribbean Conference of Ministers responsible for Health at their meeting in Belize, July 14-16, 1981, in their Resolution No.14 gave full support to the establishment of a telemedicine project, and to efforts by the University to raise the necessary funds from international agencies. Likewise, a meeting of Ministers of Education in Antigua, June 3-4, 1982, expressed appreciation for the work done in the elaboration of the distance teaching project; and urged member governments to support it in whatever way possible, and to initiate consultation with INTELSAT with a view to obtaining preferential tariffs for communication relating to educational and public service activities.

Other groupings of Ministers similarly recorded their support. The Prime Minister and the Minister of Education of Dominica were particularly supportive and urged an early beginning of a distance teaching network with one site to be placed in Dominica.

The major recommendation of the CARCOST report was for a five year pilot with particular emphasis on the teaching of the first year of the B.Sc.(Social Sciences); In-Service Teacher Training; Health and Agricultural applications; and University Administration.

That report emphasized that the successful use of teleconferencing techniques for educational purposes in the Caribbean must depend heavily on the simultaneous development of other aspects of educational technology, i.e. the use of print, audio-visual and other media, which would, hopefully, also help to enhance the usual teaching in the University and in other institutions in the region. The report very much favoured an interactive rather than a broadcast system because of the clearly expressed wish of potential participants, particularly in the more isolated populations, to communicate in real time. This was a sine qua non for medical consultations.

The recommendations of the CARCOST report were fully accepted in principle and work began immediately to put at least some of them into effect. CARCOST had been funded by the Latin American Division of the United States Agency for International Development (USAID); that Division maintained high interest throughout, so it seemed natural to turn once again to AID for assistance in the execution of the next logical steps.

Discussions with USAID Based on CARCOST Recommendations

The UWI team which took part in the discussions was comprised of Ms. Catherine Gilpin-Hudson and Pro-Vice-Chancellor Gerald Lalor, both of whom had been much involved in the CARCOST study. AID had been developing a world-wide project and had hoped that there would be a UWI component. The AID team included Dr. Clifford Block, Dr. Robert Schenkkan, Dr. Larry Frymire, and a number of consultants including Dr. Anna Stahmer and Ms. Karen Tietjen, from the Academy for Educational Development.

The UWI team suggested a two-step approach. First an immediate start on a system using FM radio within Jamaica to continue the momentum generated by the CARCOST study and to gain experience with distance teaching; then a satellite based system with small ground terminals covering as many countries as possible. They emphasized that, whatever the delivery mechanism, there was need for an experiment which was of a minimum of five years duration. It was felt that between start-up delays; the need for training; the long lead times to get courses well put together; the need to obtain sufficient data for analysis and testing; and the mere passage of time necessary for the teachers, students and educational authorities to digest the impact of a new phenomenon, a period of five years would be hardly long enough. This seemed the more vital because teleconferencing could have very great implications throughout the educational system and generate a whole new plethora of outreach activities on the part of UWI.

AID was unable to accept these proposals. In their view the project had to be regional from the beginning. The only satellite which seemed available for use was ATS-3, which was still giving good service but had so uncertain a future that it was deemed unwise to purchase the necessary ground equipment. In any event,

the price of small terminals in any event was not falling as rapidly as had been hoped. The regional telephone service therefore had to be used. Furthermore, AID had no funds to project beyond three years and indeed the funds then available were admittedly insufficient to do all that was mutually desired. The package first presented by AID was much too large to be covered by the resources available and in the time period specified, but discussions continued over a period of a few months and eventually a more manageable package emerged.

Nevertheless, it was only after much heart-searching and with some trepidation that the UWI team recommended acceptance of the project to the University committees. The team, and the Vice-Chancellor, were of the view that if the momentum generated by CARCOST were lost at this stage, it might be irretrievable and the possible benefits did promise to be tremendous. Also it must be a part of the responsibility of a regional university to investigate, as far as it can afford to, interesting new possibilities of great potential impact.

But even after formal acceptance of the AID grant, opinions were really quite divided within UWI on the possible usefulness of the proposed experiment, which on occasion was alluded to as "ET stuff". Some persons thought it a waste of human effort on speculative, high technology, unlikely to further the cause of education in the Caribbean. It must be appreciated that UWI itself was preoccupied in other directions: its funding was not growing, restructuring was a major concern and, more than anything else, its staff was already carrying out a very full load of teaching, research, and public service, at a time when the staff/student ratio in some faculties was decreasing. Yet sufficient persons, including the Chancellor, Sir Allen Lewis, himself from a non-campus country, saw the potential of a telecommunications network to ensure a reasonable starting level of cooperation. The various Ministers of Education, the Ministers of Health and Agriculture and, in Dominica, the Prime Minister gave unstinting support.

Shortly after the agreement was signed, Pro-Vice-Chancellor Lalor and Ms. Gilpin-Hudson visited the islands which would be involved for meetings with relevant Ministries and for public relations exercises. They held discussions with teachers, prospective students, government ministers and officials, the staff of the telecommunications carriers, and presented a number of public lectures. These visits led to the expectation that a distance teaching network would be well received and to financial contributions from the Governments of Dominica and St. Lucia.

CHAPTER II

UNIVERSITY OF THE WEST INDIES DISTANCE TEACHING EXPERIMENT (UWIDITE)

The agreement with AID was signed in May 1982. AID provided a grant of US$600,000 over a three year period for salaries and other support. Furthermore, AID provided the audio equipment for five teleconferencing rooms; about US$220,000 for the communication costs; and funds for technical assistance and training. The CARCOST report provided the planning blueprint which, indeed, has been adhered to remarkably closely.

In summary, the objective was to show that technically the system could be made to work in the Caribbean, that we could manage it, and that it made good sense from the financial, educational and public service points of view. It was realized that UWIDITE could provide an example for other regions particularly where resources, skills, and expertise are limited and institutions must provide services over wide areas at affordable costs. A demonstration of the effectiveness of UWIDITE therefore has global implications.

ADDITIONAL FUNDING

Organizations other than AID have contributed to the purchase of equipment or the funding of particular programmes. These include the European Development Fund which provided funds for the telewriters, Johns Hopkins Programme for International Education in Gynaecology and Obstetrics (JHPIEGO) for continuing medical education programmes in reproductive health for doctors and senior nurses; The Commonwealth Foundation to support a programme for secondary school technicians and science teachers, and of course, the University of the West Indies. The Governments of St. Lucia and Dominica each contributed EC$15,000 and EC$18,000 respectively.

START-UP

Start-up operations, originally scheduled for January 10, 1983, had to be postponed several times due to delays in the delivery and installation of the equipment, the installation of telephone lines in some of the sites, and in securing the satellite link between Jamaica and Trinidad. Eventually the network was activated on March 7, 1983 but even so, for the first four months of operation to June, 1983, the signal from Jamaica to Trinidad was routed through Canada. The late start-up meant that no meaningful academic work could be done for the 1982/1983 academic year.

ADMINISTRATION, MANAGEMENT, AND STAFFING

The project was implemented by the UWI and AID through its prime contractor, the Washington based Academy for Educational Development (AED). The Academy undertook responsibility for planning, procurement of equipment, installation, training of personnel, and the provision of technical assistance. From July 1982 to March 1983, a field officer from AED, Dr. Jay Miller, was based at Mona. There were two co-contractors with the Academy: Teleconsult Inc. for installation of the audio equipment, and Abt Associates Inc. for the evaluation.

THE ORGANIZATION OF UWIDITE

A Project Office was established within the office of Pro-Vice-Chancellor G.C. Lalor, who is Project Director. The activities at both the Cave Hill and St. Augustine campuses are co-ordinated by Pro-Vice-Chancellor Rudolph Goodridge (who took over from Pro-Vice-Chancellor Keith Hunte), and Pro-Vice-Chancellor Max Richards, respectively. This includes liaison between the Project Office and the campus, local government, telecommunications authorities, and, of course, the campus community. The Resident Tutors are responsible for the sites in the non-campus countries.

STAFF

Mona

A Project Officer at the level of lecturer (Miss Christine Marrett, B.A., Dip. Mass Comm., Dip. Management Studies) joined the project on July 1, 1982. She is responsible for the day to day operations and programme planning. A second project officer, also at the level of lecturer (Miss Vilma McClenan, B.Sc., Dip.Ed.), joined in January 1983, primarily as co-ordinator for a programme in laboratory management but assisting in operations and planning. Other staff in the Project Office include an administrative assistant, Mrs. Karlene Morrish-Cooke, whose main function is the production of print materials, two clerk/typists, and an office attendant.

AID and the Academy were very keen on the early appointment of a "Technical Director". This was not possible because it is not at all easy in Jamaica to find skilled persons who are willing to accept short term employment. The later appointment in March 1984 of a full-time Technical Officer at the level of Senior Technologist (Mr. Keith Manison) did make a great difference. His duties included overall responsibility for the technical maintenance of the equipment, assisting users in incorporating the equipment into teleconferences, developing computer links and contributing to the technical planning for an expanded network. However, he resigned in September 1985 for more lucrative employment. Prior to the employment of the Technical Officer and subsequent to his resignation, the Head of the Elec-

tronics Unit at Mona, Mr. Gladstone Walling, has been assisting in technical matters.

The Project Office also regularly employs five students per term (8 hours each per week) to assist with the operation of UWIDITE after office hours, proof-reading, etc. A Peace Corps Volunteer (Mr. John Wagner) was attached to the project as a graphic artist from March 1984 to March 1985.

Cave Hill

Mrs. Elizabeth Campbell, B.A., MLS, ALA, Librarian of the Learning Resource Centre, oversees the day to day operation of the project in Cave Hill. Since November 1984, she has been assisted by one full-time secretary. Five students also assist with the operation of the network. Technical expertise and maintenance is provided by Mr. Roy Braithwaite and technicians from the Physics Department.

St. Augustine

Day to day operations in St.Augustine have been handled by two postgraduate students and the secretary to the Campus Co-ordinator (Mrs. Susan Lee Ying). Mr. Selwyn Tom Pack of the Estate Manager's office provides technical expertise and maintenance.

Dominica

In Dominica, a temporary Resident Tutor, Mr. Jerome Barzey, and Mr. James Farrell, were responsible for the activities from May 1984 to April 1985. Mr. Farrell was responsible for technical maintenance. He was assisted by a technician from the local Cable and Wireless Office, Mr. C. Winston, who continues to provide assistance after Mr. Farrell left the project on the permanent appointment of a Resident Tutor (Mrs. Edith Allen). The secretary of the Extra Mural Centre (Miss Delia White) assists the Resident Tutor in administering the project.

St. Lucia

In St. Lucia, the Resident Tutor, Mrs. Marilyn Floissac, is assisted by a part-time secretary employed to the project. Technical maintenance is carried out by Mr. Alvin Myres on a part time basis.

Antigua

The Secretary of the Extra Mural Centre in Antigua (Mrs. Yvonne Bayrd) has been responsible for the co-ordination of the project in that country. Part-time technical assistance was first provided by Mr. Earl Richardson and later Mr. Patrick Dore.

ADVISORY COMMITTEE

The Vice-Chancellor appointed an Advisory Committee to:

advise on policy;

contribute to the evaluation and planning for subsequent operational services;

serve as a conduit for information and feedback between the University and the project.

The composition of the Committee is:

Project Director - Chairman
Project Officer - Secretary
Campus Co-ordinators
Deans of the Faculties of Agriculture, Education, Medicine, and Social Sciences
Director of the Extra Mural Department
University Bursar
University Librarian
Campus Librarians
Representatives of each Campus Administration

The Advisory Committee met seven times during the first three years of the project.

ORGANIZATIONAL STRUCTURE

The organizational structure is shown in Figure 1.

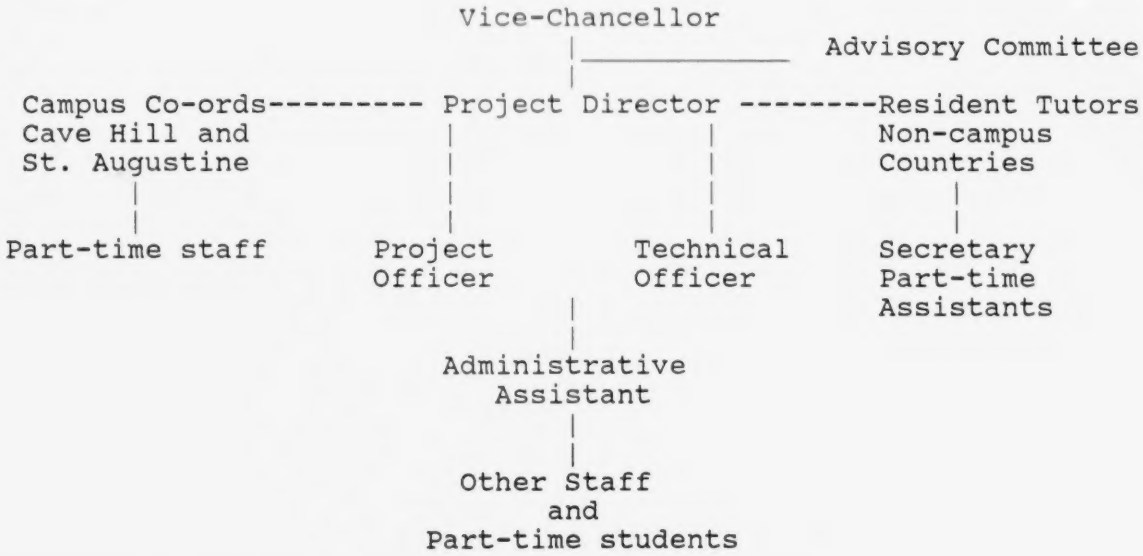


Figure 1: ORGANIZATIONAL Structure of UWIDITE

DESCRIPTION OF THE SYSTEM

The original hopes of operating small ground stations were shelved because of the limited funds available and the uncertain future of the ATS-3 satellite which would have been the only likely one available for a Caribbean system. The network makes use of the normal commercial telecommunications facilities. One result is that there are as many as eight independent companies involved. These are:

> Antigua Public Utilities Authority; Barbados Telephone Co.; Barbados External Telecommunications Ltd.; Cable and Wireless Ltd.; Jamaica Telephone Co.; Jamaica International Telecommunications Co.; Trinidad and Tobago Telephone Co.; Trinidad External Telecommunications Co.

This large number of carriers makes for an element of confusion. In hindsight it would have been much simpler to have worked more closely in the design and operational development of the system with at least one of the carriers, say Cable & Wireless. This would probably also have encouraged more interest and participation on their part.

The network is a dedicated four-wire telephone link of bandwidth 300 Hz to 3000 Hz. This differs from usual two-wire telephone circuits in that a separate pair of wires is used for incoming and outgoing signals. It also costs more but the potential quality is very much higher since crosstalk is reduced and it is possible to disconnect the transmit pair from a site which has become noisy,thus converting it to receive only. A sketch of the network is on the inside cover.

The operation is as follows: from, for example, the Mona campus the signal travels by a four-wire telephone line to the Kingston offices of the Jamaica International Telecommunications Company and thence by microwave circuit to their satellite ground station located at Prospect Pen in the eastern part of the island. It is relayed via the INTELSAT Flight 4 satellite, which is located at 325.5 degrees East, to the corresponding ground station at Matura in north-east Trinidad and, by a microwave link, to the Cable & Wireless office in St. Lucia which is the hub of the system. From there it goes out to the international gateways in Dominica, Antigua, and Trinidad by microwave circuits and to Barbados by tropospheric scatter. The final link to all the University sites is by four-wire telephone lines. The circuits are on twenty-four hour lease at commercial rates less 20%.

The stations cannot be selectively linked; all are connected all the time. For some of the programmes, a small facility at the Cornwall Regional Hospital in Montego Bay, Jamaica, is linked into the network on a two-wire to four-wire bridge at the Mona centre.

Teleconference Rooms and Equipment

Each site modified existing facilities for telconferencing rooms. These are not as well acoustically treated as might be desirable but they seemed adequate at least for the initial efforts.

Each teleconferencing room is equipped with at least six microphones, two loud-speakers, slow-scan television (SSTV) equipment, and a telewriter for on-line use. For off-line use, each centre is provided with video cassette playback facilities. Each campus site has a scrambler which allows the discussion of examinations and other confidential matters, and a micro-computer for document transmission. Major items of equipment and costings are shown in Table 5.

Table 5. Equipment and Approximate Costs

Item	Cost (U.S.$)
Darome Convenor	3,000
Pulsecom	3,936
Slow-Scan Television	9,500
Telewriter	9,500
Video Recorder and Monitor	1,400
Cassette Player	50
Standby Generator	500
X-Ray Light Box	350
Miscellaneous	500
TOTAL	28,736

THE AUDIO EQUIPMENT

The audio equipment consists of:

1. Pulsecom Telephone Termination equipment

2. Darome Teleconferencing equipment

3. Telephone Handset.

Pulsecom

The Pulsecom Termination equipment provides switching capabilities for six peripherals. It is also supposed to provide a "privacy" mode, allowing two or more sites to speak while excluding others. However, all efforts to get this mode to function have been in vain.

Currently, the Darome equipment, the computers at the three campus sites, and the telephone handset are the only peripherals routed through the Pulsecom unit. It is cumbersome to switch each time the slow-scan television or telewriter is required so

the SSTV has been wired directly to the telephone block and the telewriter is channeled through the Darome socket on the Pulsecom for amplification of the signal.

Darome Equipment

The CARCOST staff had experimented with the Darome Conveners in teleconferencing exercises and these were considered satisfactory for further work.

The Darome equipment includes:

- one convener
- push-to-talk microphones
- one lavalier microphone
- connection boxes and connecting wires
- two external speakers.

The Darome convener is equipped with volume control to adjust incoming levels and also has a public address (PA) system. The microphones are "daisy chained". The bar at the base of the microphones has to be depressed and held down while speaking; the lavalier microphone can remain "live" and is intended for the use of the lecturer or presenter.

The Darome microphones are insensitive and unidirectional to ensure that distracting noises, such as off-microphone discussions, will not be transmitted. One has to speak directly into and close to the microphone and some speakers have difficulty in keeping this position. The Darome microphones at Mona have therefore been replaced by Shure equipment with goose necks. A headset with an attached microphone has been favoured by some presenters.

The Darome conveners have voice operated and echo suppresser circuits which prevent output from the station if a signal is coming in, and cuts out incoming audio when a signal is transmitted. The relative strengths of the incoming and outgoing signals determine which operation takes place. With noisy systems the interference can override the signal. This problem was overcome at Mona by adding a Shure compression mixer and a modified PA amplifier. The mixer has automatic gain control to compensate for different voice levels and system response. This also allows the presenter to move his head without causing drastic changes in transmitted voice levels. The other sites will be modified similarly in due course.

Scramblers

Scramblers were purchased for use by the three campuses to ensure confidentiality of discussions of sensitive issues such as examination questions. The three units, as installed, cannot function simultaneously owing to the time delay on the satellite link. They are, nevertheless, useful for discussions between any two campuses.

VIDEO EQUIPMENT

Initially there were no plans for visuals but an insistent demand for some sort of visuals built up very quickly. This led to the installation of slow-scan television, video cassette recording and playback facilities, and telewriters.

SSTV

Three slow-scan television units were purchased early in 1983 from Colorado Video Incorporated in the USA and two units were graciously donated by that company. A fourth unit was purchased with the addition of Antigua and a receive only unit was purchased for Montego Bay.

SSTV is used to transmit and receive still images. A video camera scans a scene (e.g. participants in the room, a diagram) which is then "frozen", digitised, and stored in the memory of a microprocessor. The signal is converted to audio tones which are transmitted through the network to the receiving stations, where they are stored and re-converted to visual images on a video monitor.

The equipment can store two images and operates up to three cameras. All the sites have one camera with the exception of the centre at Mona, which is equipped with two. One camera is mounted on a stand adjacent to the console so that presenters can place pre-prepared visual aids on the stand, freeze and transmit the image without moving from the console.

The slow scan television has turned out to be the workhorse. The equipment is robust and the manufacturers, Colorado Video, have been extremely helpful so maintenance has not been too great a problem. Students seem to enjoy being introduced to the tutors and other students by this medium and it has been much used as a teaching aid similar to the overhead projector.

Telewriters

French-manufactured "Teleconference" telewriter units substitute for the traditional blackboard. Each unit consists of a pad with a special pen for writing, a microprocessor and a video monitor. As the pad is written on, the image is digitised and transmitted simultaneously to all the sites in red or green, as selected. Up to fifteen pages can be stored in memory for instant recall. The images can be modified or erased from any site. The unit is impressive but they have given much too much trouble: the four-wire to two-wire conversions for the modems were not too good, spares are hard to come by, and there were many minor faults. Nevertheless, because it simulates a "pencil and paper" situation we have persisted.

Facsimile would have been useful on many occasions for document transmission. A single computer based system to carry out all these functions as well as data transfer would greatly facilitate distance teaching.

Video Playback

Each site has been provided with VHS half-inch NTSC video playback facilities for off-line use. A number of video tapes have been produced by UWIDITE for specific programmes.

COMPUTERS

IBM, Jamaica, arranged the loan of personal computers on each campus for networking experiments. These were attached to the system using Hayes Smartcom modems modified for four-wire lines. A specially designed communications package, UWICOM, was developed by Mr. Keith Manison.

The computer service began at the end of February, 1985. The accuracy of attended data transfer has been good, with no problems with incorrectly received data or garbaged files.

UWICOM

The UWICOM communications package comprises a suite of programmes in IBM advanced BASIC that are selected and controlled by a top level menu written for Microprocessor Developments "menu" supplied with the "Sculptor" programming package. This provides five options, four of which call BASIC programmes, the other uses a DOS utility. The options are as follows:

1. Automatic Communications Module
2. Message Entry Module
3. Queue File Module
4. Set up Station ID Module
5. Print Messages file option

Problems with Computer Operations

One of the main objectives of the computer network was unattended file transfers during off hours. The software operated perfectly when controlled by an operator, but automatic transmission at night has been only partially successful. Even a momentary loss of power on the network produced an error from which the software could not recover despite quite extensive error trap routines. The error is caused by the asynchronous communications adapter, but the exact cause (e.g. framing, parity, loss of carrier, etc.) is not yet known.

Use of Computer Link

Most of the computer traffic has been UWIDITE messages concerning schedules and time tables, student registration details, and library catalogue numbers. To make maximum use of the

computers the network must have users throughout the campuses. This requires more extensive use of compatible word processing both in the faculties and administration. The computer link offers great potential but still needs improvement.

X-Ray Film Viewer

This was found useful to allow the exchange of information on x-ray images by medical practitioners.

TECHNICAL PERFORMANCE

The audio quality has often compared favourably with the usual telephone system but there have been many breakdowns and other problems. When the system is working well it can be impressive but on occasion the technical performance was below specifications. The down time, except in Trinidad, was not excessive, no more than perhaps a few percent of the demand time but the demand for UWIDITE grew so quickly that any down time at all became most embarrassing. What follows illustrates the difficulties fairly but the litany of woes must not be interpreted to mean that on the whole the system did not work well.

While appreciating the assistance given by the carriers, the difficulty in identifying the source of disturbances and the delays in having them rectified have sometimes been most embarrassing. The weakest links are the telephone land lines in Trinidad and Jamaica. Some of the worse examples follow:

(1) during the first four months of the project the signal was routed by satellite to Canada and thence by undersea cable from Tortola down to St. Lucia, there were several occasions when "leakage" or "crossing" occurred;

(2) the telephone lines in Trinidad were down from May 20, to September 27, 1983. Since then, service has been interrupted on various occasions for different lengths of time for up to three weeks;

(3) levels out of Barbados have frequently been too high. Music and "cross talk" are often audible from that site;

(4) the service in Jamaica suffered many interruptions varying from a few hours to as long as two weeks.

After a period of particularly poor service during the quarter, October - December 1985, the carriers instituted a regular monthly system-wide check. This has done wonders but land line problems persist. The use of small ground stations seems an inherently more satisfactory approach but there are promises of improved land line performance.

The main problems with equipment have been:

(1) malfunctioning of the switches on the microphones;

(2) breakage of the telewriter's pen cable which is obviously not too well designed;

(3) malfunctioning of boards in the SSTV and telewriter transceivers;

(4) problems with telewriter modems.

It is worth recording that there were but few occasions of cancellations due to absence of tutors and that, moreover, so great has been enthusiasm that work has proceeded even with noisy lines and troublesome equipment.

TRAINING OF STAFF AND FACULTY

The introduction of this new concept to the UWI necessitated the training of staff and faculty. A variety of training programmes was arranged by UWIDITE in some instances with the assistance of AED. The major ones are are listed in Table 6.

Table 6. UWIDITE Training Programmes.

Date/Place	Programme
November 1982 Mona	Development of materials and effective use of audio
December 9, 1982 Mona	Regional Orientation Seminar for Faculty and Administrative Personnel
March 28, 29, 1983 Network	Orientation to Distance Teaching
May 16, 17, 1983 Network	Seminar on Distance Teaching and Teleconferencing
September 26, 27, 1983 Mona	Workshop to develop UWIDITE Courses in Reproductive Health
March 1, 2, 1984 Network	Using SSTV
May 1, 8, 24 Mona	Demonstrations for Departments
January 25, 1985 Network	Managing a Distance Teaching Session
April 19, 1985 Network	Developing Curriculum Materials for Distance Teaching

Print materials which were developed for these training programmes include:

"An Orientation to the UWIDITE Network and Teleconferencing", by Keith Manison.

"Preparation and Use of Material for Slow-Scan Television", by Keith Manison.

"UWIDITE Course Development Manual", by Zellyne Jennings and Christine Marrett.

"Distance Teaching with Video Productions", by Christine Marrett.

"Managing a Distance Teaching Session", by Vilma McClenan.

The AED Field Officer presented a five week module on distance teaching and media development for students at the Caribbean Institute of Mass Communication, Mona campus, during the first term of the academic year 1982/83.

Project and Registry staff and faculty have visited distance teaching programmes and taken part in symposia all over the world, to obtain and share information on distance teaching programmes and on teleconferencing networks. These include:

Mona

Project Director

The Director of UWIDITE, Pro-Vice-Chancellor Lalor, has visited a number of countries and spoken at numerous conferences on distance teaching and, in particular, the UWI experiment. Two of the more impressive conferences were the Pacific Telecommunications Council's 1984 conference in Hawaii in January of that year, and the Meeting of Specialists on Distance Teaching in Higher Education held in Cambridge, England, January 1985.

Project Officers

In August 1982 the Project Officer, Miss Christine Marrett, visited a number of distance teaching institutions in the United States on a two week orientation tour. That tour included: the University of Indiana; the University of Wisconsin (UW) Extension Centre; and the Academy of Educational Development in Washington. She later visited Miami Dade Community College, USA; the Open Learning Institute, Vancouver, the University of Waterloo, Canada; Virginia Ostendorf Inc., in Denver, USA. She was invited to the Seventh Management Committee Meeting of the Pan-Caribbean Disaster Preparedness and Prevention Project (PCDPPP), in Antigua, December 6-8, 1984 at which she presented a paper on UWIDITE and helped to develop plans for a programme on disaster preparedness which is reported on later.

The other Project Officer, Miss Vilma McClenan, visited a number of countries during the course of the project and made presentations on UWIDITE at various science conferences. These include: the CASTME African Regional Workshop, held in Malawi, Africa, in April 1984; a conference in Trinidad sponsored by Caribbean Industrial Research Institute (CARIRI) and the Association of Science Educators of Trinidad and Tobago in November 1984; the Annual Conference of the National Science Teachers Association, held in Cincinati, USA, in April 1985; and in late July 1985, a conference on Science and Technology Education and Future Human Needs, held in Bangalore, India.

Other Visits

An Assistant Registrar, Mrs. Barbara Christie, also visited UW-Extension, October 4-7, 1982, where she participated in various discussions and a teleconference.

Mr. Uriel Salmon, Senior Lecturer in the Department of Management Studies, who teaches the accounting course for first year social sciences on the network, visited the Queensborough Community College, USA, to observe their distance teaching methods.

Cave Hill and St. Augustine

Staff from these campuses attended a seminar at the University of Wisconsin - Extension, on Teleconferencing and Interactive Media, May 18 - 20, 1983. From St. Augustine campus, the Campus Co-ordinator, Pro-Vice-Chancellor Max Richards, and the lecturer for the course in sociology taught on the network, Dr. Ken Pryce; from the Cave Hill campus, Professor M. Walrond of the Department of Surgery attended.

Mrs. Elizabeth Campbell, Librarian of the Learning Resource Centre on the Cave Hill campus who also oversees the operation of the UWIDITE network, was awarded an administrative travelling fellowship by the Association of Commonwealth Universities which enabled her to go to the United Kingdom where she visited a number of professional concerns in distance teaching and the development of audiovisuals at the tertiary level including the Open University.

CHAPTER III

TEACHING MATERIALS AND METHODS

PRINT

CARCOST staff had emphasized the need for teaching materials in the form of booklets, charts and, exceptionally, audio and video cassettes. The short description of the suggested print material was "something longer and more detailed than good lecture notes which would direct the student very closely to the course offerings, indicate possible problem areas and provide, as necessary, a guide to additional reading and study." This would be particularly helpful since many students would be far from good libraries, textbooks are expensive and the delivery times are frequently very long.

But this view was not unanimous. Some staff considered that the booklet approach was tantamount to "spoon feeding"; that it would not develop critical faculties in the students; and that students would deprive themselves of the breadth of reading and discussion which made all the difference to a good education. There were also a few who at first refused to provide detailed written material saying that "Subject X is just not taught in that way."

There was some concern about copyrights: it was never disputed that the printed materials would be sold; but the scale of the sales, and the price per unit, were expected to be so small that the payment of royalties would require a disproportionate amount of administration. Eventually it was agreed that UWIDITE would pay for the material and would have full rights to use it within the University. Any other proposed use would require agreement with the author. The authors, on the other hand, could use the material as they saw fit and even compete directly with UWIDITE for sales. The resolution of these matters took a surprisingly long time fraught with frustration as the lead time for preparation was rather short.

It has become clear to us that preparation of the required teaching material of this sort is not at all easy. It is a time consuming chore which already busy people can justifiably be reluctant to undertake, the more so since the lead times were much too short. Moreover, the payments which had been offered were perhaps miserly, so it is easier to understand today why it proved so difficult to get some lecturers to write.

The courses are in the main developed by the presenters assisted, where necessary, by researchers and consultants. After the contents have been determined a contract is agreed to prepare draft booklets for discussion, editing and approval. The authors are provided with assistance for graphics and where necessary for typing. Wherever possible the person who would be teaching the course was asked to assume responsibility for the development of the printed material. This meant supplying a clear hand or

typewritten manuscript which was then copied on to a word processor. The manuscript and comments from selected readers were returned to the author for any suggested changes. The final document was compiled on the word processor and printed therefrom on stencils which were run off in the usual way. The process from word processor to completed booklet represents a good deal of effort by UWIDITE personnel and is quite time consuming but the scale of the activity did not merit the cost of printing.

The next problem was to get the material to the sites. There seldom seemed to be sufficient time for this. Material often did not turn up as expected on one or more sites and eventually UWIDITE was forced more and more to depend on University staff who were travelling to hand carry the documents and to use the commercial courier services which are expensive and not always fully satisfactory. The situation has much improved by now since much of the material is at hand. It is still not ideal, however, and about 5-10% of the material is still being rushed to the sites to arrive barely in time for the class.

The solution to this would be to strengthen the duplicating facilities at each site and install a computer network which could transmit and receive documents during the night hours.

THE VALUE OF SUPPORT MATERIAL

The importance of support material, particularly print, can hardly be overestimated. To allow for significant interaction students must have the material in good time to allow them to prepare adequately. On the other hand, tutors should not read at length from available material but rather spend the time in discussion and amplification.

For reasons of cost it was best to have the work centralized in Mona where equipment is available to UWIDITE, and staff in Jamaica are paid much less than in the other islands. However, the Cave Hill campus has been doing some of its work locally.

A list of the printed units is given in Appendix 1. These have been well received and on-campus students also use the material. In due course and with realistic pricing this could be a source of income for UWIDITE.

VIDEO CASSETTES

Although there had been warnings about the amount of time and money needed for the preparation of worthwhile TV material, the teachers and students early on began to request video material. The UWIDITE staff had no suitable experience and the Caribbean Institute of Mass Communications though well equipped and on the Mona campus, did not wish to get involved in a production exercise of this sort.

Production assistance was provided at nominal costs by Dr. Nancy George from Electronic Media Associates and Miss Natalie Thompson from CINECOM Limited. Miss Thompson also trained UWIDITE staff. The scripts were written by the teachers with their help. Filming and editing were done mainly by a student, Mr. Robert Davis, working part time. The video-cameras and editing equipment are NTSC 1/2 inch VHS. The final cassettes are not of broadcast quality but are acceptable to the students.

Video presentations produced by UWIDITE up to the end of 1985 are included in Appendix 2.

TEACHING METHODS

With the assistance of consultants from AED a number of major training sessions was mounted for those who were expected to teach on the system. Other programmes mostly using the system were presented for the training of a variety of users. It was quite impressive to see how quickly users accustomed themselves to the audio. The video components required more effort but those who were accustomed to using overhead projectors, etc., as an integral part of their usual teaching had no difficulty.

While it is inappropriate to try to design a single method to be used by all teachers in the various situations, the guiding principle has been that maximum use should be made of the interactive potential of the system. Teachers were asked to bear this in mind at all times; to try to ensure that the support materials were ready early; to encourage the students to read and study the material before each class; and to encourage questions and discussions. The suggestion was that the teacher should seldom talk for more than 10 - 15 minutes without a break for discussions.

The success in achieving these aims varied a great deal. Some teachers have not converted to the interactive style, some have done splendidly. Some classes have not responded well, others have done superbly. The extent of interaction is itself a complex of interactions between subject matter, teacher, class, extent of preparation of students (and teacher), technical quality of the system and no doubt other variables. However, some of the teachers have become expert at eliciting interaction and general acceptance of this mode is expected to grow.

CHAPTER IV

PROGRAMMES

A wide variety of programmes was offered not only to meet a spectrum of needs, but also to obtain data for an assessment of the sorts of programmes at which a permanent system might aim. There were two general classes of programmes: one provided for formal university certification and was, up to the end of 1985, based on programmes offered on campus. The other was specially designed for some particular group of participants and certificates of participation were awarded.

Proposals for new courses for formal UWI certification receive careful academic scrutiny. After discussions at the departmental level they are forwarded to the relevant faculty on the originating campus. Comments are sought from the other two campuses. The course outlines, facilities and staffing required, examination methods, etc., are then presented to the Campus Academic Board and, finally to the University Academic Committee which is the deciding body. This can be a time consuming route and it was, therefore, prudent to use existing programmes, notably the Challenge Examinations offered by the Faculty of Social Sciences, and some of the Certificates of Education, rather than to attempt to design new courses.

The reports on the programmes are grouped under the following headings:

1. Administration
2. Inter-campus Assistance for Undergraduate Programmes
3. Outreach Programmes
4. Training of Science Technicians
5. Agriculture
6. Health
7. Social Sciences and Law
8. Education

ADMINISTRATION

A fair proportion of the system time has been occupied by administration both of UWIDITE itself and general UWI matters.

Examples of usage for administration are:

* examinations and examination schedules
* student admissions
* student affairs
* meetings of University Boards and Committees
* administration of the library system

The major user for administration understandably has been the University Registry which holds weekly teleconferences. The then University Registrar, Mr. Carl Jackman wrote, as early as March 1983, "....in a half-an-hour conversation [on UWIDITE] one is able to settle problems that would normally take months to determine when agreement is required from all three Campus Secretaries".

One exceptional teleconference was a special meeting of the University Senate. Fifty-nine members were present in St. Augustine, twelve in Mona, and thirteen in Cave Hill.

The libraries, faculties and departments, public relations unit, academic staff unions, and the Guild of Undergraduates have all made substantial use of UWIDITE.

INTER-CAMPUS ASSISTANCE FOR UNDERGRADUATE PROGRAMMES

The Caribbean Institute of Mass Communication (CARIMAC) and the Department of Geology both taught parts of a programme to students in Mona using lecturers on other campuses.

CARIMAC students began receiving lectures in October 1985 from Barbados for the final year course, Communication Analysis and Planning, after the lecturer for that course, Mrs. Mary Motta-Beckles, relocated to Barbados and no replacement could be found at short notice.

CARIMAC also used the network for teleconferencing with Ohio State University for the planning of their own communications developments.

The Department of Geology used the network to have a section of its programme, Engineering Geology, taught from St. Augustine.

OUTREACH PROGRAMMES

(1) Caribbean Art Forms

A series of week-long discussions on each of Caribbean Dance, Drama, Music, Poetry and the Novel, was conducted in August 1983. All sites participated except Trinidad where the lines were out of order. The objectives of the discussions were to:

* allow Caribbean artistes to examine the work, progress, and problems of their colleagues;

* consider ways in which to continue cultural interaction between the islands and to stimulate and encourage artistes teleconferences.

Some 40 persons participated in the series.

A Creative Writing Workshop was held during the following summer (1984). This was intended to:

* promote discussions among writers with a view to widening understanding of contemporary Caribbean writing;

* provide support and encouragement for writers;

* examine approaches to having work published.

Two-hour sessions were held once weekly from July 25 - August 29, 1984. Participants were asked to submit copies of their work and these were circulated.

An Arts Symposium was held in July and August 1985. The main topics and the presenters for this symposium are in Table 7.

Table 7. Outline of the Arts Symposium

Topic	Presenter/Country
Dance	
Developing a Common West Indian Technique in Dance	Jackie Guy/Jamaica
Poetry	
The Solitary Voice vs Audience as Crowd: The Direction of Caribbean Poetry Today	Eddie Baugh/Jamaica
The Short Story	
The Short Story	Marjorie Thorpe/Trinidad
Music	
Caribbean Musical Forms: From Practice to Performance	Ouida Hylton-Tomlinson/Jamaica
Plastic Arts	
A Caribbean Consciousness in Visual Arts	Jerry Craig/Jamaica

Twice weekly sessions of one and a half hours each ran from July 16 to August 29, 1985. Some 35 persons took part in the symposium.

(2) Science Quizzes

Two science quizzes were organized and co-ordinated by Miss Vilma McClenan. The local Science Teachers' Association in the various islands handled site co-ordination and each country suggested questions. The first quiz was held in August 1984. Teams of students under the age of 15 years from Jamaica, St. Lucia, and Dominica competed. Trinidad could not compete because of technical problems. Dominica emerged the winners.

The second quiz was held in July 1985. The participating teams were Jamaica, St. Lucia, Dominica, and Trinidad; with Trinidad emerging winners. Book prizes were provided for the winning teams.

(3) Training of Pre-School Trainers

One of the first programmes on the network was mounted by the Regional Pre-School Child Development Centre (RPCDC), a unit of the Extra Mural Department. The programme, Principles of Training, was designed to increase the skills of trainers and potential trainers to plan and conduct training programmes for various categories of day care and pre-school staff. It consisted of two face-to-face sessions with each group of participants and ten two-hour sessions on the system. The outline is in Table 8.

Table 8. Course Content of Principles of Training

Session	Topic
1	The Importance and Function of Training
2	Prerequisites for Training - Needs Assessment
3	Organizing for Training - Developing the Training Curriculum
4	Developing the Curriculum
4	Working with Adults - Group Dynamics
5	Working with Adults - Group Dynamics
6	Strategies for Training - Methodology
8	Methodology - Participatory Training
9	The Practical Consideration - Mobilizing Resources for Planning and Implementation
10	Evaluation - Assessing Effectiveness of Training

The numbers of participants were: Barbados, 5; Dominica 5; St. Lucia 5; and Jamaica 6. The presenters were Mrs. Rose Davies, Mrs. Janet Brown, Mrs. Ruby Yorke, Dr. Leachim Semaj. RPCDC has since published a manual, "Principles and Practices of Training", based on this course.

RPCDC field co-ordinators administered the course. This included the local selection of participants, liaison with UWIDITE, and the handling of the teaching materials. The co-ordinators attended all sessions to monitor presentations and feedback. They also assisted when leadership and direction in group activities and discussions were required.

(4) Training of Caribbean Labour Administrators

This programme was designed largely by Mr. Astley N. Leslie, the Regional Labour Administration Adviser of the Caribbean Labour Administration Centre (CLAC), assisted by UWIDITE staff and an Academic Co-ordinator, Mr. Carlyle Dunkley of the Department of Management Studies, Mona campus. CLAC was established by the International Labour Organization in 1978 to provide technical assistance to Ministries and Departments of Labour.

Because of the difficulty and expense of carrying out programmes in 17 scattered countries, teleconferencing seemed attractive. However, to include countries not in the UWIDITE system a participant from each of Grenada, Guyana, Montserrat, St. Kitts, and St. Vincent was flown each week to the nearest UWIDITE site. The sessions were held for three hours on each Saturday morning for 12 weeks during the period July 7 - Sept. 26, 1985. There were 6 lecturers chosen from Antigua, Barbados, and Trinidad.

Course Outline

The course consisted of:

1. an overview of the conciliation process;
2. the Caribbean social and economic environment and its impact on labour management relations;
3. the general background to the conciliation process;
4. the role of employers' and workers' organizations in the settlement of industrial disputes;
5. the conciliator's preparation and entry into a dispute;
6. conducting a conciliation meeting;
7. conciliation techniques;
8. post conciliation action;

9. preventive conciliation;

10. review and evaluation of the course.

Participants

The numbers of participants and awards from each participating country are in Table 9.

Table 9. Numbers of Participants and Certificates Awarded in CLAC Training Course.

	Participants	Awards
Antigua/Barbuda	5	2
Barbados	7	5
Dominica	6	4
Grenada	1	1
Guyana	1	1
Jamaica	7	3
Montserrat	1	0
St. Kitts/Nevis	1	1
St. Lucia	5	4
St. Vincent	1	1
Trinidad/Tobago	6	6
	---	---
	41	28

It is impressive that as many as 41 students were willing to give up Saturday mornings for as long as 12 weeks on a stretch. The success rate was 68%. Thirteen awards were not made because of poor attendance. Among the reasons given for absence were transfer, vacation leave, and in only two cases insufficient interest by the nominees.

Between December 1978 and September 1985, CLAC had provided training for some 200 officials through seminars, workshops, attachments, etc.; this UWIDITE programme therefore represents a significant contribution. The course was well received and in the view of the participants - students, tutors, and collaborators - it produced entirely satisfactory results. CLAC remains in touch with UWIDITE and it is expected that further programmes will be developed.

TRAINING OF SCIENCE TECHNICIANS

This programme was designed to improve support activities in school laboratories. Four courses each of six months duration were provided and a total of 123 technicians were trained. The programme was mounted at the request of the Commonwealth Association of Science, Technology, and Mathematics Educators (CASTME) as a result of a regional seminar and the Commonwealth

Foundation Conference, both held in Barbados in April 1982. The project was supported by the Commonwealth Foundation.

Implementation

The Co-ordinator, Miss Vilma McClenan, joined the project in January 1983. She interviewed science teachers and laboratory technicians, held discussions with UWI staff, and Ministry of Education personnel before designing the programme. These discussions helped assess the training needs, set entry requirements, clarify the nature of the tasks performed by laboratory technicians, and allowed the selection of local site supervisors.

Additional inputs came from a variety of sources including recommendations from workshops held earlier. The course consisted of the seven modules in Table 10.

Table 10. Modules Developed for the Laboratory Technicians Course

Module I :	General Laboratory Safety
Module II :	Laboratory Management
Module III:	Laboratory Apparatus and Techniques
Module IV :	Solutions
Module V :	Electricity
Module VI :	Basic Biological Techniques
Module VII:	Basic Mathematics For Laboratory Technicians

Supplemental learning activities were designed to take the place of formal laboratory sessions.

The Project Co-ordinator wrote and taught most of the course. She was assisted in this by Dr. William Bartley of the Department of Chemistry, UWI, Mona (Module III, Units 2 and 4); Miss Lilieth Nelson of Jam-Lab Supplies, Mr. Michael Brown of the Electronics Unit, UWI, Mona, Mr. Keith Manison, UWIDITE Technical Officer, (Module IV, Units 1-3, and Module V, Units 1-4), and Dr. Hilary Robotham of the Centre for Nuclear Sciences, UWI, Mona (Module VII).

Participants

The students were primarily laboratory technicians employed in secondary schools. There was a general requirement

of at least one science subject at the GCE 'O' level and passes in other subjects, but a few had no 'O' levels and some had six or seven and even 'A' level subjects. Laboratory technicians from research, hospital, and industrial laboratories, and some teachers from schools without technician support also participated.

The ages ranged from 18 to 30+ years, and the range of work experience was quite varied. This mix of age groups and work experience probably contributed to the good levels of interaction, as too did the small size of the student group at each site. Table 11 shows the number of participants in the programme.

Table 11. Numbers of Participants in Laboratory Technicians Courses by Site.

Dates	Jam. M	Jam. MB	B	T	A	D	SL	Total
9/83- 5/84	11	-	13	-	-	7	6	37
3/84- 8/84	7	7	10	10	-	0	2	36
10/84-11/85	3	0	7	-	2	7	6	25
5/85-12/85	2	-	4	-	15*	5	6	32
	23	7	34	10	17	19	20	130

* 8 of these were from an industrial laboratory and only attended certain sections of the course.

A=Antigua B=Barbados D=Dominica Jam=Jamaica M=Mona MB=Montego Bay SL=St. Lucia T=Trinidad

No students in Trinidad were enrolled for the first course; the ten students in the second course participated as they were able, but because of continued malfunctioning of the Trinidad lines, they could not complete. The lack of participation thereafter is believed to be a result of the initial poor experiences on the network.

After the first course there were no more school technicians available for training in Dominica and few in St. Lucia but teachers from junior secondary schools with no laboratory technicians were nominated by their Ministries of Education to participate in the later courses. In St. Lucia the Ministry helped to defray the cost of travel.

In Jamaica, the numbers diminished as the pool with easy access to the UWIDITE centre at Mona completed. Teachers from junior secondary schools without technicians did not participate since the course did not lead directly to additional financial remuneration.

Examinations

The students received both end of module and end of course tests. The papers were marked by the Project Co-ordinator with Prof. A. Bajpai of Loughborough University, England, as external examiner. Table 12 gives a summary of the examination results.

Table 12. Overall Examination Results for Laboratory Technicians Programme

Barbados			Dominica			Jamaica			St. Lucia		
Pass	Fail	Abs.	Pass	Fail	Abs.	Pass	Fail	Abs.	Pass	Fail	Abs.
25	2	7	10	2	7	18	3	9	11	0	7

One hundred and one participants received training in this programme. Thirty (30%) did not sit the examinations, but of the remainder the 69 successes represent a pass rate of 97% which seems good evidence that distance teaching is valuable at the science technician level. Interestingly there seemed to be no correlation between numbers of 'O' levels and performance in course tests. Personal motivation seemed more important than previous academic achievement. This suggests that recruitment criteria should remain flexible.

Certification

Certificates of Participation were awarded to the successful students. It was hoped to arrange that these would be recognized by the ministries for promotion, but this was one of the matters which was not followed through although it is a valuable selling point for training of this sort.

Evaluation

The most disappointing aspect of this programme turned out to be the effect of difficulties and misunderstandings which arose with CASTME about exchange rates for the refund of expenses, non-arrival of mail and parcels, and expectations which could not be fulfilled in the absence of refunds in reasonable time for expenditures incurred. Because of this many novel aspects of the project got diminishing attention as the staff tried to complete the programme on a virtual shoestring and many matters were not followed up.

In spite of all the problems the course has had its successes. The students were pleased with the programme, enjoyed sharing ideas with students from different countries. The printed material and video productions were well received and could well be of value in other regions. Representatives of the Ministries of Education in St. Lucia, and Dominica found the programme useful and thought it filled a real need.

The one consistent criticism was the lack of formal practical sessions. The students themselves were expected to apply what they learned on the network in their day to day work, and some additional activities were arranged in some of the countries but the desire for structured practicals remained strong. This should probably be taken into account in any future courses of this type.

AGRICULTURE

Agriculture is an important sector of the Caribbean economy and is receiving increased emphasis throughout the region. Agricultural programmes were therefore a key element for consideration for distance teaching.

The CARCOST report had outlined a number of possibilities and recommendations arising from a workshop, "Telecommunications in Agriculture in the CARICOM Region", which was held in Trinidad in February 1982. The areas suggested for immediate attention were:

1. Research Co-ordination and Support
2. A Diploma in Agricultural Extension
3. In-Service Workshops
4. In-Service Teaching for Extension Officers
5. Expanded Outreach Programmes

These are as valid today as they were then. However, as Table 13 shows, the agricultural component has not been extensive. The major difficulties were that one of the major projects in the Eastern Caribbean - the Caribbean Agricultural Extension Project (CAEP) - did not see any advantages in using the system and the Faculty of Agriculture did not find it worthwhile to mount what, in their view, would be small and inadequately staffed programmes; but there was no funding available to meet their requirements. Nevertheless some interesting work was done.

Table 13. Summary Of Use of UWIDITE for Agriculture-Related Topics

Year	Topic	Sites	Total Hrs.
83/84	General Discussions	All	7
	CARDI	J,B,T	10.5
84	Agric. Extension	J,B,T	3
	Student research Support	J,B,T	3
	Parasitology	J,St.L	8
85	Integrated Pest Management	All	6
	Farm Tech '85	All	6

Integrated Pest Management

The only teaching programme related to agriculture has been an in-service Integrated Pest Management (IPM) course for Agricultural Extension Officers, Public Health Inspectors, and Commercial Pest Controllers.

This course was developed and co-ordinated by Dr. Ajai Mansingh, Department of Zoology, Mona. It ran for 8 hours, 1 1/2 hours per week, from January 15, 1985. The presenters were Dr. Mansingh, Dr. Joseph Suah and Ms. Jenice Reid of the Caribbean Agricultural Research and Development Institute (CARDI).

The topics were:

Principles of integrated pest management

Recognition and identification of pests

Study of pests

Economic study of the pest

Methods of pest control

Pest Management

Students were provided with print materials as usual. A local supervisor assisted with practicals and demonstrations. Two sessions took the form of panel discussions, with panelists drawn from the Botany (Prof. G. Sidrak), Biochemistry (Prof. H. Coore) and Zoology (Prof. I. Goodbody) departments of the Mona

campus, and from CARDI in Jamaica (Dr. J. Suah and Ms. J. Reid) and Barbados, (Mr. Munir Alam).

The participants were required to carry out project work - investigating, observing, and classifying host/parasite relationships in crop plants, livestock, and domestic animals; investigating commercial pesticides sold and used locally; biological and cultural control practices, and the developing of an IPM plan for a particular local pest species.

A total of 37 students participated as follows: Barbados 5, Trinidad 8, Dominica 5, Antigua 11. Certificates of participation were awarded at the end of the course.

Farm Tech '85

Farm Tech '85 was a Seminar/Exhibition on Modern Technology for Jamaican Agriculture. It was held January 25 - February 1, 1985 in Kingston, Jamaica. Some 22 papers and 8 case studies were contributed by agricultural scientists from Jamaica, Trinidad, Barbados, Dominica, Canada, Mexico, Nigeria, the United Kingdom, and Japan.

The Faculty of Agriculture used the network to extend the seminar to participants in the other countries on the network. The following topics were discussed on the network in four one-hour teleconferences:

1. Technology and Agricultural Development in Tropical Countries

2. Advances in Ornamental Horticulture

3. New Technologies for Small Farmers

4. Artificial Insemination Technology in Cattle and Goats.

HEALTH AND NUTRITION

The Faculty of Medical Sciences has facilities at the Mona campus; the Mount Hope Medical Complex in Trinidad; and the Queen Elizabeth Hospital in Barbados. These play a major role in the training of medical personnel and the delivery of health care in the region.

The Faculty is comprised of the following departments and units:

Anaesthetics and Intensive Care*	Pharmacology
Anatomy	Physiology
Biochemistry	Psychiatry
Child Health	Radiology
Medicine	Social and Preventive Medicine*
Microbiology	Advanced Nursing Education Unit
Obstetrics and Gynaecology*	Surgery*
Pathology	Tropical Metabolism Research Unit*

The Faculty was much interested in the applications of teleconferencing for teaching, consultations, administration, and to a lesser extent in developing patient care. Many of the programmes were interdisciplinary. Those departments which made most use of the network are indicated by an asterisk.

Cardiology

Consultants from the Departments of Surgery, Anaesthetics and Intensive Care, Medicine, and Child Health, and Technologists from ECG and Radiology departments, who have special interests in Cardiology, have been holding monthly consultations of one hour each as of November 2, 1984. These have been mainly with members of the Cardiac Unit and Junior Medical Staff of the Queen Elizabeth Hospital, Barbados.

Teleconferencing was the only way to obtain cost-effective multi-party discussions of cases in the various countries. It was particularly valuable when deciding about the transfer of patients from one country to another for surgery and reduced the number of cases in which transfer to another country for surgery was not necessary.

The co-ordinator of the Cardiology group, Mr. Howard Spencer, Senior Lecturer in the Department of Surgery, also arranged the first Caribbean Cardiology Conference. This was held on October 12, 1985, entirely by teleconference. Some 100 persons in the six countries on the network participated. Papers were presented by lecturers in Barbados, St. Lucia, Trinidad and Jamaica. The topics included:

* Modern concepts in Management of Rheumatic Fever
* Coronary Artery Disease and various aspects of treatment in relation to the Homograft Valve.
* Management of Cardiac Disease in the Neonate.

The conference was by no means free of problems but the participants were enthusiastic and there are plans to make it an annual affair.

Emergency Health Management

The Pan Caribbean Disaster Prevention and Preparedness Project (PCDPPP), and the Department of Social and Preventive Medicine (DSPM) mounted a short course, funded by the Pan American Health Organization (PAHO), in Emergency Health Management after Natural Disasters.

The programme was designed by the DSPM Programme Co-ordinator, Dr. Winsome Segree, a training consultant from PCDPPP, Mr. Carlton James, and UWIDITE staff. Study materials were provided by PAHO. The course began on March 20, 1985 and ran until June 5, 1985, with weekly sessions of 1 1/2 hours duration. Antigua, Barbados, St. Lucia, Trinidad, and Jamaica (Mona and Montego Bay) took part. Dominica joined for a few sessions.

As shown in Table 14 there were 37 regular participants with 5 occasional visitors. The participants were: doctors, nurses, public health inspectors, and administrators.

Table 14. Number of Participants in Course on Emergency Health Management After Natural Disasters.

Site	Numbers
Antigua	3
Barbados	9
Jamaica - Kingston	5
- Montego Bay	6
St. Lucia	8 (2)
Trinidad	6 (3)
	37 (5)

( ) gives numbers of occasional participants

The course topics were:

Effects of Disaster on Health

Co-ordination of National Relief Activities

Management of Mass Casualties

Epidemiologic Surveillance and Disease Control

Environmental Health Management

Food and Nutrition

Temporary Settlements and Refugee Camps

Communication and Transport

Management of Health Relief Supplies

Management of International Relief Assistance

Re-establishing Normal Programmes

Disaster Preparedness

The sessions took the form of discussions led by a resource person with all sites participating. The programme co-ordinator outlined the topic of the day, introduced the resource person, and stimulated discussion. The resource persons were:

Mr. Charles Blake, Director, School of Public Health, Jamaica

Mr. Franklyn McDonald, Director, Office of Disaster Preparedness, Jamaica

Dr. Christine Moodie, Project Manager, Health Management Improvement Project, Ministry of Health, Jamaica

Dr. Wynante Patterson, Director, Caribbean Food and Nutrition Institute, Jamaica

Mr. Franklyn Smith, Director, Emergency Services, Red Cross Society, Jamaica

Dr. Barrington Wint, Principal Medical Officer (Secondary Care), Ministry of Health, Jamaica

The course was very well received and the participants agreed that repeat courses and follow-up sessions would be useful. There was a strong view that a mechanism was necessary to ensure that the information was implemented thus improving the countries' capability to cope with natural disasters.

Certificates of participation were awarded to students with a minimum of 75% attendance.

Obstetrics and Gynaecology

The Advanced Training and Fertility Management Unit, Department of Obstetrics and Gynaecology, headed by Professor H. Wynter has made much use of the UWIDITE system as follows:

Consultations/Case Presentations

The Unit carried out monthly consultation sessions. These have been particularly welcomed in the non-campus countries for the opportunity they allow for wider discussion of difficult and rare cases.

Undergraduate Review Sessions

A series of review sessions, one hour per week for 10 weeks, was presented for students who had completed the Obstetrics/Gynaecology clerkship. The sessions provided reviews of selected topics for students to:

* improve subject knowledge

* clarify aspects of diagnosis and management

* increase their preparedness for the M.B.B.S examinations.

The sessions also allowed the undergraduates to "meet" a number of Consultants in the various countries.

A minimum of eight sessions were required for accreditation on the Student Performance Cards but auditing of some sessions was permitted. The first course (November 15, 1984 - January 24, 1985) dealt with the following subject areas:

Diagnostic Aids

Bleeding

Malignancies

Contraceptive Choice

The Staff at Mona; the Queen Elizabeth Hospital, Barbados; and the Mount Hope Maternity Hospital, Trinidad carried out the programme. A urologist and a surgeon specializing in diseases of the breast delivered invited presentations. An outline of the first course is in Table 15.

About forty undergraduates participated in each session at Mona; Barbados had an average of 18 participants and Trinidad an average of 5. Considering the already crowded schedule of final year students, the level of participation, except for Trinidad, was extremely high. A second course began on October 31, 1985 and ran until January 16, 1986. The topics and presenters were in the main the same as for the first course.

The students' interaction was good and they responded well to having a variety of tutors. They hoped to see the system used for other specialties.

The presenters appeared to enjoy the programme; some of them have now become quite expert at distance teaching methodologies and are willing to extend their efforts.

Table 15. Undergraduate Review Sessions in Fertility Management

Topics	Presenters	Originating Site
Colposcopy and Laproscopy	Dr. Y. Rotchell Prof. S. Roopnarinesingh	Mona and Trinidad
Ultra Sonography	Dr. A. Mullings	Mona
Cystoscopy	Dr. Neil Garbutt	Mona
	Bleeding Disorders	
Upper Genital Tract	Dr. James Boyce	Barbados
Lower Genital Tract	Prof. Hugh Wynter	Mona
	Malignancies	
Lower Genital Tract	Dr. J. Hall	Mona
Upper Genital Tract	Prof. S. Roopnarinesingh	Trinidad
Examination/Disorders of the Breast	Mr. D. Raje	Mona
Contraceptive Choice	Dr. L. Matadial	Mona
Open Seminar - Question/Answer	Dr. Y. Rotchell	Barbados

Postgraduate Review Sessions

The Unit also mounted a postgraduate review course from March 7 to May 9, 1985. This consisted of 10 one-and-a-half hour sessions, one session per week. Participants successfully completing the course with a minimum attendance at eight sessions were eligible for University approved certification. Obstetricians and Gynaecologists, and General Practitioners from the non-campus countries and Montego Bay who have a special interest in this field were encouraged to participate.

The course allowed postgraduates to:

- update their knowledge
- discuss new approaches to diagnosis and management
- increase their preparedness for qualifying examinations.

The topics covered in the Postgraduate Review Sessions are outlined in Table 16.

Table 16. Outline of Postgraduate Review Programme in Fertility Management

Topic	Presenter	Originating Site
Gallacteria/Amenorrhoea Syndrome	Prof. S. Roopnarinesingh	Trinidad
Subfertility	Prof. H. Wynter	Mona
Haematological Disorders of Pregnancy (including sickle cell)	Dr. J. Boyce	Barbados
Ultrasonography	Dr. A. Mullings	Mona
Contraceptive Choice	Dr. L. Matadial	Mona
Voluntary Sterilization Gynaecological problems/ Choice/Sequelae	Dr. B. Sorhaindo	Dominica
Pelvic Inflammatory Disease	Dr. Y. Rotchell	Barbados
Foetal Surveillance	Dr. S. Kulkarni	Mona
Hypertensive Disorders of Pregnancy	Dr. L. Matadial	Mona
Gynaecological Cancer Screening and Follow-up	Dr. J. Hall	Mona

Table 17 gives the numbers of participants per site for this programme.

Table 17. Student Numbers in Postgraduate Review Programme in Fertility Management (November 1984)

M	J MB	B	T	A	D	SL	TOTAL
16	5	4	8	5	7	3	48

A=Antigua B=Barbados D=Dominica J=Jamaica M=Mona MB=Montego Bay SL=St. Lucia T=Trinidad

Fertility Management

This was the major programme delivered by the Advanced Training and Research in Fertility Management Unit. It was funded by the Johns Hopkins Programme for International Education in Gynaecology and Obstetrics (JHPIEGO) and provided postgraduate courses for nurses and doctors using UWIDITE. The objective was:

> To use the teleconferencing system of the UWI for the simultaneous presentation and conduct of reproductive health courses at five sites to update the knowledge and skills of physicians and other health professionals.

The work of the full-time Project Co-ordinator, Mrs. Christine Craig, was indispensable to the success of the programme. She first visited each of the countries for discussions with the Ministries of Health; these were amplified in a workshop for course development which was held in Jamaica, September 27 and 28, 1983. Ms. Erin Keogh, a Consultant from Memorial University's Telemedicine Project, Canada, and Miss Christine Marrett, UWIDITE Project Officer, assisted in the workshop. The first courses for nurses and physicians respectively began on February 6, 1984. Both courses were of twelve sessions, each two hours long, held once weekly. The Cornwall Regional Hospital site in Montego Bay, Jamaica, was included in this programme.

Course Components

The topics covered in the physicians' programme were:

(1) Human Sexuality
(2) An Approach to Subfertility
(3) Update on Fertility Control
  a) Oral Contraceptives
  b) The Injectables
(4) Natural Methods of Family Planning;
  The IUCD and Barrier Methods
  New Directions
(5) Clinic Management
(6) Voluntary Sterilization
(7) Open Session: Common Clinical Problems
(8) Pregnancy Testing; Pre- and Post-Natal
  Care
(9) Care and Management of High Risk Pregnancy
(10) Gynaecological Cancer Screening and Follow-up
(11) Sexually Transmitted Diseases
(12) Population Dynamics
  Caribbean Family Laws

The components of the Nurses' programme were the same, except that items 2 and 9 were replaced by Counselling and Diagnosis, Management, and Referral of 1st Trimester Wastage.

The participants' evaluation of this programme rated the print material and the relevance of the topics to the actual work situation particularly highly. In spite of equipment and line problems the participants enjoyed the new experience of distance learning. The good reception of courses encouraged repeats of the course. As shown in Table 18 these programmes have reached 107 doctors and 265 nurses across the various sites.

Table 18. Student Numbers in Fertility Management Programmes

Date	J M	J MB	B	T	A	D	SL	TOTAL
				Doctors				
Feb 84	13	6	12	10	-	10	9	60
Sep 84	11	8	6	7	8	-	7	47
	24	14	18	17	8	10	16	107
				Nurses				
Feb 84	12	7	12	12	-	12	10	65
Nov 84	11	5	10	10	10	12	10	68
Mar 85	9	5	10	10	10	12	10	66
Dec 85	10	6	10	10	10	10	10	66
	42	23	42	42	30	46	40	265

A=Antigua B=Barbados D=Dominica J=Jamaica M=Mona MB=Montego Bay SL=St. Lucia T=Trinidad

Nutrition for Community Workers

The Caribbean Food and Nutrition Institute (CFNI) presented two four-hour per week, six-week long courses for community workers who are employed in the fields of agriculture, education, health, and community development. The aim was to: update concepts; promote an awareness of nutrition problems and measures to overcome them; and to strengthen skills to promote good nutrition practices in the community. Table 19 gives the number of students per course.

Table 19. Student Numbers in Nutrition Courses

Date	Numbers per Site							
	Jam							
	M	MB	B	T	A	D	SL	Total
21/8-28/9/84	5	5	-	5	-	6	6	27
23/5-13/6/85	5	-	2	-	15	6	6	34
	10	5	2	5	15	12	12	61

A=Antigua B=Barbados D=Dominica Jam=Jamaica M=Mona MB=Montego Bay SL=St. Lucia T=Trinidad

Mrs. Versada Campbell, Nutrition Educator, CFNI, Jamaica, was overall co-ordinator. The local co-ordinators were senior nutritionists in each country; their responsibilities included: liaison with the various Ministries to select participants; liaison with UWIDITE; providing feedback to CFNI; distribution of materials; and, in some instances, teaching specific topics.

The course was based on the publication, "Nutrition Handbook for Community Workers", and covered aspects of:

* working with the community
* food and good health
* how to buy, store and prepare foods properly
* nutrition during pregnancy and breast feeding
* young child nutrition
* health problems related to food and nutrition
* improving health and nutrition in the community

Table 20 summarizes the content and gives the presenters for the first course.

Table 20. Content and Presenters of Nutrition Course for Community Workers

Topic	Presenter
Overview of Food and Nutrition in the Caribbean	Mrs. Patricia Manchew Public Health Nutritionist, CFNI, Trinidad
Our Food Needs and Food Ways	"
Factors Affecting Food and Nutrition	"
Guidance for Improved Food and Nutrition Practices, e.g. Breast Feeding	"
Finding out about the Community	"
Role of Good Communication in Nutrition Education	Mrs. Andrea Okwesa Media Officer/Editor CFNI, Jamaica
Working Effectively with the Community/Other Organizations	"
Wise Selection, Storage and Preparation of Foods	Miss Paula Trotter Nutritionist, Ministry of Health, Dominica
The Cost-Nutrient Concept in Food Selection	Dr. Curtis McIntosh Agricultural Economist CFNI, Trinidad
Improving Food Availability Through Home Food Production	"
Systems for Producing Food	"
Simple Techniques for Pest Control	"
Soil Conservation, Fertilizer, Production	"
School Gardens	Mrs. Maria Jackson Senior Nutritionist Ministry of Health, Jamaica
Young Child Feeding-Associated Myths	
Feeding School Children	Miss Paula Trotter
School Meals as a Tool for Nutrition Education	" (cont'd)

Table 20 cont'd.

Feeding Adolescents	Mrs. Maria Jackson
Counselling the Pregnant Teenager on Diet	"
Feeding Adults	Miss Paula Trotter and Mrs. Maria Jackson
The Manual Labourer	"
Pregnant and Lactating Women (Associated Myths)	"
Feeding the Elderly, the Obese, the Diabetic, the Hypertensive (Associated Myths)	Ms. D. St. Hill, Nutritionist, Ministry of Health, Trinidad.
Feeding the Sick Child	Mrs. Versada Campbell Nutrition Educator CFNI, Jamaica
Diarrhea/Gastroenteritis	
Monitoring Growth and Development of Young Children	"
Malnutrition in Young Children	Mrs. Sandra Murray Health Educator (Nutrition) Ministry of Health,St.Lucia
Monitoring & Surveillance of Food and Nutrition in the Community - Responsibilities of Sectors	Dr. Curtis McIntosh
Evaluating One's Performance	"

Evaluation

The evaluation was based on the comparison of performances in pre-course and post-course tests, a structured questionnaire, and observations made throughout the course. The test scores improved markedly between the pre- and post-course tests and, except where technical problems occurred, the interest remained high. Participants and country co-ordinators so welcomed the course that it will be repeated annually.

SOCIAL SCIENCES AND LAW

The Faculty of Social Sciences

The B.Sc. degree is offered in the disciplines shown in Table 21.

Table 21. Faculty of Social Sciences Offerings

Programme	Offered at Cave Hill	Mona	St. Augustine
Accounting	x	x	x
Economics	x	x	x
Economics and Accounting	x	x	
Economics and History	x		
Economics and Law	x		
Economics and Management	x	x	
Economics and Mathematics	x		x
Government		x	x
Hotel Management*	x	x	x
International Relations		x	
Management Studies		x	x
Political Science and Law	x		
Public Administration and Law	x		
Social Sciences	x	x	x
Social Work		x	
Sociology		x	x
Sociology and Political Science	x		
Sociology and Law	x		
Tourism Management*		x	
Diplomas			
Health Management		x	
International Relations			x
Management Studies		x	x
Population Studies		x	
Public Administration	x	x	
Hotel Management*	Bahamas		
Certificates			
Management Studies		x	x
Public Administration		x	
Social Work		x	

*Part II of the degrees in Hotel Management and Tourism Management is available only in Nassau, Bahamas.

The B.Sc. degree is a three year programme with a common first year consisting of:

(i) Elements of Economics
(ii) Introduction to Politics
(iii) Introduction to Sociology
(iv) (a) Mathematics and Statistics or Basic Mathematics for Social Sciences
or
(b) Statistics and Scientific Method

v) (a) Introduction to Accounting
or
(b) Foundations of New World History or History of the Caribbean
or
(c) Constitutional and Administrative Law

Five of these courses are required for entry into the second year but one can be trailed.

Several of these programmes are so highly sought after that the numbers of applicants greatly exceeds the available places. Moreover, specific components of many of the programmes would form an excellent basis for valuable technical in-service programmes tailored to specific needs.

The Challenge Examination Scheme

The Challenge Examination Scheme was implemented in 1978 to allow suitably qualified students in non-campus countries to pursue the first part of the B.Sc. degree in the Social Sciences without having to attend classes on a campus. It was originally a true challenge since the University provided the syllabus, booklists, and access to the library at each Extra Mural Centre but little else. Students who complete at least four of the five Part I courses within a maximum of three years are eligible for admission to the Part II programme on a campus. The scheme was accepted on the understanding that the Faculty would meet the additional responsibilities at no additional cost to the University.

The scheme offers the advantage that there is no loss of income for the student and no cost of replacement for the employer, the Government (or the student) is saved the economic and maintenance costs for one year. There is also an element of selection before the student is committed to the campus programme. There are now other programmes in the Challenge Examination Scheme. These include: first year law; the Certificate in Public Administration (CPA); both of which make use of first year Social Sciences programme. This scheme provided UWIDITE an easily identifiable programme with a ready-made demand.

Although the campus countries were originally excluded from the Challenge Scheme there seemed every reason to include students of the campus countries in a UWIDITE programme, and this was accepted by the University Academic Committee.

Responsibility for the Challenge Scheme and marking of the examinations is divided between the three campuses as follows:

Cave Hill:	Antigua, Dominica, Montserrat
St. Augustine:	Grenada, St. Lucia, St. Vincent
Mona:	Bahamas, Belize, St. Kitts

However, since teaching for the UWIDITE programmes originates from all campuses, it would seem nonsense for UWIDITE students to do other than follow the syllabus and sit the examinations of the campus originating the teaching. The distribution of the courses has been:

Mona:	Introduction to Accounting; Personnel Management and Industrial Relations (CPA only).
Cave Hill:	Elements of Economics; Mathematics and Statistics.
St. Augustine:	Introduction to Sociology; History of the Caribbean.

The closest collaboration is necessary to ensure that the right papers are sat in each site. The easy solution would be to revert to the historical situation in which a common first year course was taught throughout the University and the same examination was sat by all students, but this is unlikely at present.

Table 22 gives the origins of teaching and student enrolments for each UWIDITE social science course for the academic years 1983/84, 1984/85, and 1985/86.

Table 22. Origins and Enrolments of UWIDITE Social Science Courses.

Course	Origin	A	D	SL	B	T	J M	MB	Total
				Student numbers (1983/84)					
Intro. to Sociology	T	-	14	11	0	3	3	-	31
Accounting	J	-	3	14	0	1	5	-	23
Elements of Economics	B	-	11	13	0	4	4	-	32
History of the Caribbean	B	-	3	8	0	3	-	-	14
				Student numbers (1984/85)					
Intro. to Sociology	T	10	8	15	6	2	7	-	48
Accounting	J	12	3	10	7	0	9	-	41
Elements of Economics	B	11	9	18	8	1	8	-	55
Maths. and Statistics	B	9	7	18	3	0	10	-	47
History of the Caribbean	T	-	1	10	2	1	-	-	14
Personnel Management and Industrial Relations(CPA)	J	5	7	5	-	-	-	-	17
				Student numbers (1985/86)					
Intro. to Sociology	T	10	4	15	5	4	9	5	52
Accounting	J	12	19	10	7	2	5	5	60
Elements of Economics	B	11	5	18	6	6	15	0	61
Maths. and Statistics	B	9	3	18	4	4	12	0	50
History of the Caribbean	T	-	1	10	0	6	0	0	17
Personnel Management and Industrial Relations(CPA)	J	5	16	-	-	-	-	-	21

A = Antigua B = Barbados D = Dominica
J = Jamaica SL = St.Lucia T = Trinidad
M = Mona
MB = Montego Bay

Tables 23 and 24 show the results of examinations for the UWIDITE Social Science courses for years 1983/84 and 1984/85, respectively.

Table 23. Examination Results for Social Sciences, 1983/84

Course	Numbers Registered (R)	Sat Exam (S)	Passed (P)	(P/R)%	(P/S)%
		Jamaica			
Accounting	5	5	5	100	100
Intro.to Sociology	3	3	1	33	33
Elements of Econ.	4	4	3	75	75
		Trinidad			
Accounting	1	0	-	-	-
Intro.to Sociology	3	1	1	33	100
Elements of Econ.	4	0	-	-	-
History of the Caribbean	3	0	-	-	-
		Dominica			
Accounting	3	3	3	100	100
Intro.to Sociology	14	3	2	14	67
Elements of Econ.	11	6	1	9	17
History of the Caribbean	3	2	2	67	100
		St. Lucia			
Accounting	14	11	6	43	55
Intro.to Sociology	11	5	4	36	80
Elements of Econ.	13	10	1	8	10
History of the Caribbean	8	6	4	50	67

NB: Antigua was not on the network for academic year 1983/84. Barbados did not have any UWIDITE Social Science students for academic year 1983/84

Students in Trinidad did not register until the beginning of the second term of academic year 1983/84, which may account for their not sitting the exam.

Table 24. Examination Results for Social Sciences, 1984/85

Course	Students Registered (R)	Students Sat Exam (S)	Students Passed (P)	(P)%(R)	(P)%(S)
		Jamaica			
Accounting	9	5	5	56	100
Intro.to Sociology	7	6	3	43	50
Elements of Econ.	8	5	3	38	60
History of the Caribbean	-	-	-	-	-
Maths & Stats	10	8	3	30	38
Personnel Management & Ind. Relations(CPA)	-	-	-	-	-
		Trinidad			
Accounting	-	-	-	-	-
Intro.to Sociology	2	2	1	50	50
Elements of Econ.	1	1	1	100	100
History of the Caribbean	1	1	1	100	100
Maths & Stats	-	-	-	-	-
Personnel Management & Ind. Relations(CPA)	-	-	-	-	-
		Barbados			
Accounting	7	7	2	28	28
Intro.to Sociology	6	5	2	33	40
Elements of Econ.	8	7	3	38	43
History of the Caribbean	2	1	0	0	0
Maths & Stats	3	2	1	33	50
Personnel Management & Ind. Relations(CPA)	-	-	-	-	-
		Dominica			
Accounting	3	3	3	100	100
Intro.to Sociology	8	5	5	63	100
Elements of Econ.	9	8	6	67	75
History of the Caribbean	1	1	1	100	100
Maths & Stats	7	3	3	43	100
Personnel Management & Ind. Relations(CPA)	7	6	4	57	67

(cont'd)

Table 24 cont'd.

Course	Students Registered (R)	Sat Exam (S)	Passed (P)	(P)%(R)	(P)%(S)
		St. Lucia			
Accounting	10	9	6	60	67
Intro.to Sociology	15	8	3	20	38
Elements of Econ.	18	14	6	33	43
History of the Caribbean	10	5	3	30	60
Maths & Stats	18	12	5	28	42
Personnel Management & Ind. Relations(CPA)	5	5	5	100	100
		Antigua			
Accounting	12	12	8	67	67
Intro.to Sociology	10	10	3	30	30
Elements of Econ.	11	11	6	55	55
History of the Caribbean	-	-	-	-	-
Maths & Stats	9	9	7	78	78
Personnel Management & Ind. Relations(CPA)	5	5	5	100	100

Overall these examination results are acceptable although some pass rates are lower than desired. This may reflect the lack of sufficient print materials. No doubt assignments and exercises which would help prepare the students for answering questions in examination conditions would improve the results, but lack of resources for this is a limiting factor.

LAW

The first year law programme is also offered under the Challenge Examination Scheme and although the entire programme is not yet taught on UWIDITE, the Law Faculty has been offering tutorials during the Easter break to students in Dominica, St. Lucia, and Antigua. Students on the Mona campus have also participated. These tutorials originate from all three campuses and have been most welcome.

Table 25 outlines the tutorial topics.

Table 25. Topics For Law Tutorials

Law and Legal Systems

Reception of Law	Nature and Classification of Law
The Legal Profession	Statutory Interpretation

Constitutional Law

Parliamentary Privilege	The Nature of W.I. Constitutions
Separation of Powers	Conventions & Written Constitutions
Supremacy of Constitutions	Machinery for Protection of Human Rights
Rule of Law	

Criminal Law

General Defences	Actus Reus
Murder	Mens Rea
Manslaughter	Provocation

EDUCATION

There are two entry streams to the teaching profession in the Caribbean. One is through the usual undergraduate programmes the other through the Teacher Training Colleges. The products of both streams have felt the need for further training and upgrading and the Faculty of Education has, therefore, long offered full-time one year courses for this purpose. The University graduate teacher reads for a Diploma in Education and the practising non-graduate for a Certificate in Education, both of which provide opportunities for professional upgrading and, importantly, for higher salaries.

Although the Certificate is not a degree programme the admission requirements are stringent. To be eligible a candidate will:

(a) have been a successful internal student in an institution of teacher education for a minimum of one year and have had three years subsequent approved teaching experience; or

(b) have had ten years of satisfactory teaching experience provided that, although not having been an internal student in an institution of teacher education, he/she has been declared to be a qualified or certified teacher by the competent authority in his/her country. Applicants may also be required to sit an entrance examination.

The programme consists of a common core plus one of the following specializations:

(a) administration of schools
(b) the teaching of the hearing impaired
(c) the teaching of mathematics
(d) the teaching of science other than mathematics
(e) the teaching of English
(f) the teaching of physical education
(g) the teaching of social studies
(h) the teaching of creative arts
(i) the teaching of reading
(j) the teaching of Spanish
(k) the teaching of religious education.

The Certificate in Education seemed ideal for adaptation to distance teaching for the following reasons:

(1) the students would be able to obtain the full qualification without reading courses on campus;

(2) an in-service programme seemed likely to attract many more candidates and allow an increased number of teachers in the non-campus countries to participate.

The programmes for Teachers of the Hearing Impaired and Teachers of Reading were the first adapted for distance teaching for the first operational academic year of UWIDITE. These were selected because some expertise and equipment were available in the countries and, most importantly, the lecturers were willing to prepare the print and video materials in the very short time available.

The adaptation to distance teaching included:

(1) fixing the duration of the course at 15 months;

(2) arranging for the continuous assessment of students' written assignments;

(3) appointing local supervisors to help assess the students in their teaching practicals;

(4) drafting guidelines for the local supervisors to ensure uniformity of input;

(5) arranging for University examiners (usually the lecturer in the specialist area) to carry out the final assessment of the teaching practicum in the students' countries.

The Certificate programmes which have been adapted, and the persons who taught the courses are in Table 26.

Table 26. Tutors Involved in the Delivery of the Certificate in Education Programmes, 1983-1985

ED400 Educational Psychology	Dr. Aubrey Phillips
	Dr. Arthur Richardson
ED404 Education and Social Development	Dr. Trevor Turner
	Mrs. Pauline Sahoy
ED402 Argument in Education	Mr. Ed Brandon
ED450 Curriculum Development	Dr. Zellyne Jennings
	Mrs. Barbara Bailey
ED409 Classroom Testing and Evaluation	Dr. Mary Richardson
ED495 Teaching of Reading	Dr. Sam Myres
ED490 Teaching of Mathematics	Mr. Ian Isaacs
	Mrs. Terry Tomlinson
	Mr. Phillip Nissen
ED482 Teaching of Integrated Science	Mrs.Florence Commissiong
	Mrs. Lorna Sue-Ho
ED487 Teaching of the Hearing Impaired	Miss Madge Hall

The numbers of students by specialty and site are in Table 27. This table shows that the course for teachers of reading is in continuing demand. The course for teachers of the hearing impaired was expected to attract rather more students because the associations in aid of the deaf are quite strong, there are schools for the deaf in most countries, and mainstreaming of the handicapped has become accepted in most of the region. Nevertheless, it seems that the true demand has now been satisfied except in Jamaica and Trinidad. This course, therefore, was discontinued after the second year, despite its undoubted success, to make way for programmes which seemed more universally in demand.

The course for teachers of mathematics was supposed to be one such; certainly the quality of mathematics teaching is constantly under attack but again, except for Jamaica and Trinidad, the numbers of qualified applicants have been disappointing. The situation with Integrated Science, a subject being strongly supported in the secondary schools by the Caribbean Examinations Council, is even worse. There just does not seem to be a real interest in this subject in the non-campus countries. There may be more interest in a programme which admits students with different qualifications but this remains to be seen.

Table 27. Student Numbers in Certificate in Education Programmes

	Jamaica Mona	Jamaica MoBay	B	T	A	D	SL	Total
			October 1983					
Teachers of Reading	12	-	5	0	-	4	6	27
Teachers of the Hearing Impaired	6	-	0	5	-	2	2	15
	18	-	5	5	-	6	8	42
			October 1984					
Teachers of Reading	6	-	3	4	2	5	5	25
Teachers of the Hearing Impaired	6	-	3	6	0	1	0	16
Teachers of Maths	3	-	4	8	5	4	6	30
	15	-	10	18	7	10	11	71
			October 1985					
Teachers of Reading	6	4	4	1	3	4	4	26
Teachers of Maths	9	1	0	5	2	0	2	19
Teachers of Integrated Science	10	2	1	4	0	0	3	20
	25	7	5	10	5	4	9	65

A=Antigua B=Barbados D=Dominica SL=St. Lucia T=Trinidad

Experience with the certificate programmes has shown once again that actual demand may be much smaller than the perceived needs when existing constraints in the various countries are taken into account and emphasizes the need to maintain flexibility in offerings. A fair demand can probably be found in Jamaica and Trinidad for any of the certificate offerings but this has always to be matched to the needs of the non-campus countries to allow their participation. In this way as one particular area is saturated another certificate programme should be developed.

Despite these points there has been a considerable number of students as shown in the summary Table 28.

Table 28. Summary of Registrations by Specialty in the Certificate in Education

	Numbers	
	Students	Courses
Teachers of the Hearing Impaired	31	2
Teachers of Reading	78	3
Teachers of Maths	49	2
Teachers of Integrated Science	20	1
	178	8

Examination Results

Table 29 gives the completion rates for the 1983/84 and the 1984/85 students per specialty.

Table 29. Numbers of UWIDITE Certificates In Education Awarded at First Sittings to UWIDITE Students

	1983/84	1984/85
Teaching of Reading	24 (2)	18 (6)
Teaching of the Hearing Impaired	14 (2)	11 (5)
Teaching of Mathematics	-	10 (17)

( ) gives the numbers of referred candidates; some have already completed and most of the remainder will complete in 1986.

The performance of these students has been similar to that of their counterparts in the full-time programme and the Faculty is satisfied that standards have been maintained.

Some idea of the potential impact of UWIDITE can be gleaned from Table 30 which compares some figures for the awards of the Certificate of Education. The Certificate in Education was first awarded in 1954. Between then and 1984 one thousand and nine awards were made with every country except Anguilla and the Turks and Caicos Islands participating. In 1985 after only two years with six participating countries 77 awards were made with several more candidates to complete. In this short period Dominica has produced as many certificates as in all the previous years and St. Lucia nearly 50% as many. Even Antigua, which joined late has had turned out 33% of the previous number and now has more certificate students enrolled than the previous total of thirty years.

Table 30. Territorial Distribution of Awards of Certificates In Education

	Full Time (1954-1984)	UWIDITE (1983-March 1986)
Anguilla	0	-
Antigua/Barbuda	9	3
Bahamas	14	-
Barbados	131	10
Belize	31	-
B.Virgin Islands	3	-
Cayman Islands	1	-
Dominica	12	11
Grenada	12	-
Jamaica	674	25
Montserrat	3	-
St.Kitts/Nevis	6	-
St.Lucia	22	14
St.Vincent	8	-
Trinidad/Tobago	45	14
Turks/Islands	0	-
Guyana	29	-
Other Territories	9	-
Total	1009	77

A look at the age distribution in Table 31 is instructive.

Table 31. Age Distribution of Students in the Certificate in Education Programmes

Age Group	Percentage
21-25	5.9
26-30	24.4
31-35	38.5
36-40	19.3
41-45	9.7
46-50	1.5
51-55	0.7

Almost all the students were in the 26-45 age group. These are at an age and career stage which would normally make paid study leave and replacements in the classroom necessary to allow them to proceed to a campus.

Table 32 summarizes the registrations by country.

Table 32. Summary of Registrations by Country for the UWIDITE Certificate in Education During the Period 1983-1985

	J	B	T	A	D	SL	Total
Number	65	20	33	12	20	28	178
%	36.5	11.2	18.5	6.7	11.2	15.7	100

A=Antigua B=Barbados D=Dominica J=Jamaica SL=St. Lucia T=Trinidad

Antigua was last to join the system so their numbers are the smallest. Barbados has made no more use of the certificate programme than Dominica but St. Lucia has been a steady user. The Jamaicans have taken the majority of places; this might be due to the fact that Jamaica has been more accustomed to, and has high regard for this particular programme. A most important point is that the UWIDITE programme is in-service and therefore offers opportunities which would probably never otherwise be available.

These seem very significant achievements which have cost the countries and individuals very little, but it is interesting to assess what a programme producing similar results would have cost on campus. Table 33 gives the economic and maintenance costs used to calculate the cost of the full-time programme on the cheapest campus, Mona. The economic cost is the full cost to the University training a full-time student in the Certificate of Education programme. This is a fixed charge; the maintenance is recommended by the Board for Undergraduate Awards.

Table 33. Economic and Maintenance Costs for the Full-time Certificate in Education Programme

	1983/84	1984/85	1985/86
Economic Cost(J$)	15,000	16,250	17,900
Maintenance Cost(J$)	9,440	10,046	12,050
Total	24,440	26,296	29,950

Table 34 gives the costs which would have been incurred by each country had they sent students to Mona, and includes an estimate of the costs of study leave and staff replacement. These could be obtained accurately but for the present purposes a (very low) figure of J$15,000 per student is used.

Table 34. Student Numbers in Certificate in Education Programmes and Total Economic Costs Plus Maintenance

	J	B	T	A	D	SL
October 1983						
Number	18	5	5	-	6	8
Economic Cost + Maintenance	439,920	122,200	122,200	-	146,640	195,520
Replacement + Leave	270,000	75,000	75,000	-	90,000	120,000
	709,920	197,200	197,000	-	236,640	315,520
October 1984						
Number	15	10	18	7	10	11
Economic Cost + Maintenance	366,840	244,560	440,208	171,192	244,560	269,016
Replacement + Leave	225,000	150,000	270,000	105,000	150,000	165,000
	591,840	394,560	710,208	276,192	394,560	434,016
October 1985						
Number	32	5	10	5	4	9
Economic Cost + Maintenance	958,000	149,750	299,500	149,750	119,800	269,950
Replacement + Leave	480,000	75,000	150,000	75,000	60,000	135,000
	1,438,000	224,750	449,500	224,750	179,800	404,950
Totals	2,739,760	816,510	1,356,708	500,942	811,000	1,154,486

A=Antigua B=Barbados D=Dominica J=Jamaica SL=St. Lucia T=Trinidad

The total annual costs for all the six countries had these students been registered in the usual courses would have been J$1,656,480; J$2,801,376; and J$2,921,650; say J$7.4 million or US$1.3 million. The estimate of costs for the UWIDITE operations for the eighteen month period beginning August 1986 is about J$3 million (US$545,500) so that in principle the annual savings from this one programme could meet all the recurrent costs of UWIDITE. This says a great deal about the cost effectiveness of UWIDITE.

These education courses have been real successes in terms of the numbers graduated, the quality of the students' performances, the interest of the faculty, and the much lower costs of the distance teaching programme. While it should not be claimed that distance teaching is better than attendance at a campus with all the facilities, etc., these courses seem particularly well suited to distance teaching and it does appear that the non-campus countries with UWIDITE sites can take advantage of distance teaching to obtain all the training they require at this level.

CHAPTER V

THE COST OF UWIDITE

It is not at all easy to estimate what the exact recurrent cost of UWIDITE actually was over the first three year period because so much of the work was done voluntarily and the University contributed a great deal of counterpart support which has not been fully costed. The estimates for 1986/87 of 2 million Jamaican dollars attempt to include all costs. These are much influenced by the fact that a great deal of the operations are conducted on the Mona campus where the cost of salaries is very much out of line with the other campuses due to the large devaluations of the Jamaican dollar and the staffing levels for UWIDITE are lower than desirable. It is noteworthy that the telecommunications lease represents a very substantial portion (one third) of the recurrent costs.

UNIT COSTS

A simple way of determining the unit costs of UWIDITE is to take an average hourly cost. The annual usage is summarized in Table 35.

Table 35. Usage and Hourly Cost of UWIDITE

	Term	Summer
Number of Weeks Operations	30	15
Number of Days/Week	5	4
Number of Hours/Day	10	4
Hours Used	1500	240

Dividing the total estimated cost of J$2,049,733 by the number of hours, 1740, gives the hourly cost- J$1150 or U.S.$209. This allows a calculation of the indicative cost of any particular programme. Two examples are given below:

The Certificate in Education - 1986/87

Typically this course operates as follows:

Foundation Courses: 60 hrs. x 2 = 120
Specialist Courses: 50 hrs. x 3 = 150

The cost of the full programme is therefore J$310,500 per year. With, say, seven students per site the cost per student is about J$7400.

First Year Social Sciences

Each of the four courses offered requires about 50 hours. The students read these four courses over two years. The total cost is J$230,000. With 40 students the cost per student is J$5750. It is in fact a little higher since on entry one subject would still be required. However, this is very much less than the economic cost shown in Table 4.

It should perhaps be emphasized that particularly where teaching is concerned these are still somewhat marginal costs. They would increase, of course, were academic staff employed to teach only on UWIDITE. New programmes would also incur additional costs. On the other hand greater utilization during summer would also bring down the unit costs as would increased student numbers. Nevertheless, it should be clear that the programme is cost effective.

FINANCING OF UWIDITE

There is a great deal of support for UWIDITE but this has not yet crystallized into cash. UWI has included a sum of J$1.5 million over the last two years of the present triennium, and increasingly users are being required to contribute to the cost of their programmes.

The levels of charges to all users have so far been very low, as was appropriate during an experimental period and with an external donor (AID) meeting the largest proportion of the direct costs. This will require revision now that the system has received acceptance as a normal tool and donor support is no longer available.

Central financing would involve either a specific grant from the University Grants Committee or a charge to each government on the basis of economic costs per course. Either or a combination of both is possible. User charges are obviously applicable for special programmes and for continuing education.

CHAPTER VI

FUTURE DEVELOPMENTS

EXPANSION of the SYSTEM

UWIDITE presently serves only 6 of the 14 countries which support UWI so that a priority must be an early extension to other countries and, perhaps, to develop more than one site in particular countries where appropriate.

Technically the best way to expand would be to utilize the point-to-multipoint power of a full satellite network, and there are powerful satellites aloft with footprints which cover the Caribbean. The technology is available but there are still so many problems involved in getting started that a network similar in design to the present one seems most feasible. With all its attendant problems, which cannot be unsolvable, at least only funding is the major obstacle to beginning. A likely schematic for an expanded system follows:

```
                                 ---------
                                 |Bahamas|
                                 ---------
                                     |
  --------                      +++++++++                      -------
  |Belize|----------------+Jamaica+--------------------|Turks|
  --------                     /++++|++++                      -------
                              /     |
                             /      |
                            /       |
            --------       /        |
            |Cayman|      /         |                 ---------
            --------                |                 |Tortola|
                                    |                 -----|----
                                    |                      |
 ------------                  ++++++++++             ++++|++++  ------
 |St.Vincent|------_-__-> +St.Lucia+<---------->+Antigua+--|Mont|
 ------------      /       /++++++++++\             +++++++++  ------
                  /       /     |      \                 |
                 /       /  ----------  \             ----|------
    ---------   /       /   |Dominica|   \            |St. Kitts|
    |Grenada|  /       /    ----------    \           -----------
    ---------           /                   \
                       /                     \
            ----------                   ----------
            |Trinidad|                   |Barbados|
            |   &    |                   ----------
            | Tobago |
            ----------
```

Figure 2. Proposed UWIDITE Network.

The expansion of distance teaching will require more communications hardware, additional space at the Extra Mural Centres, laboratories if practical sciences are to be taught, and library facilities. It would be logical to tie some of this into the tertiary systems in the non-campus countries. Moreover, additional staff both for teaching and to operate and administer the programme would be needed. Two telephone channels would also allow simultaneous classes and greatly expand the number of persons who could be reached.

New developments should be investigated. These should include applications of some aspects of Telemedicine for which the additional cost could be marginal. Facilities will be needed on both the campus and non-campus countries.

INTRA-ISLAND DISTANCE TEACHING

Small as the Caribbean islands may be, a considerable number of would-be students cannot take advantage of UWIDITE because their homes are too far from the sites. It would be appropriate to examine the use of radio for intra-island communication since the inland telephone "lines" are expensive, frequently noisy and unreliable and are routinely disrupted by heavy rains.

A dedicated FM system seems best. This could be used in a stand alone mode when not linked to the UWIDITE network. A combination of "line of sight radio" and a system as sketched above would represent a powerful basis for education, training, and public service, and doubtless be of interest to some African and Pacific countries.

OTHER FORMS of DISTANCE TEACHING - Interactive vs. Broadcast

Prior to 1948 the only way by which a resident of this region could gain a degree was by correspondence courses. That few persons completed by this route probably speaks clearly on the difficulties they faced, but the supplementation of print with audio and video recordings would perhaps allow a more attractive programme today. There are many problems involved not the least is the quality of the inter-island mail service. A major programme would be necessary to investigate this and to compare the results with the use of the interactive mode.

The relative role of interactive and broadcast modes has excited much debate. Using live broadcasts and reverting to lectures would allow a very considerable increase in the student numbers, and if the public broadcast systems could be used would almost eliminate the need for classes at the sites. A logical extension of this would be extensive home use of audio cassettes. It is obvious that the former is the more expensive mainly because the number of students in each class must be limited to achieve effective interaction.

The arguments for the interactive system are strongest when the needs, though significant, are not numerically overwhelming, and the students and professionals comprise small, relatively isolated communities. The interactive link is of course necessary for conferencing, seminars, etc., but no doubt arguments based on student costs will recur from time to time. Interactive teaching does not, of course, preclude other forms of teaching and these could well be examined separately.

CHAPTER VII

THE RESPONSE TO UWIDITE

UWIDITE is one of the first experiments in the developing world to to provide education and outreach by means of an interactive telecommunications network. Every effort has therefore been made to present a variety of programmes and to introduce as wide a range of persons as possible to the uses and potential of the system. These include administrators, educators, students at a variety of levels, government officials, professionals in many disciplines. The responses to UWIDITE are important in an assessment of future developments.

The overall response to UWIDITE has been heartening. Its importance is now fully accepted and it has become a high priority among UWI's development efforts.

UWIDITE is particularly appreciated in the non-campus countries which are greatly concerned about strengthening their education and training systems and improving educational facilities but have limited resources. The availability of funds is one problem but there are others: the small size of certain demands which makes the economic viability of conventional training programmes uncertain; the difficulty of recruiting staff to work in relatively isolated environments; the isolation from which such staff suffer, are examples of those which could be ameliorated by the use of telecommunications.

STUDENTS' RESPONSES

The responses of students to this novel situation are important. These were assessed by Abt Associates from interviews conducted by Abt and separately by UWIDITE. The numbers are not very large and the responses depend on a number of factors other than the communications system so no great statistical points are made but the general picture seems quite clear.

Almost everyone found the equipment easy to use; the majority participated in discussions and found this and listening to others participate useful, sometimes enjoyable; attendance at classes was good, and the programmes were found interesting. In some programmes the amount of interaction was quite remarkable, greater than in many corresponding face to face situations although this depended on the presenter. The students seem to agree that they benefit from interaction among themselves. A comparison of the responses of undergraduate and other students is in Table 36.

Table 36. Comparison of Undergraduate and Other Students on System Acceptance.

Item	% Agreeing	
	Students of Undergraduate Courses (N=30)	Students of Other Courses (N=30)
Equipment Comfortable to use	86.2	93.2
Equipment Hinders Learning	43.3	12.1
Other Sites Interacted All or Most of the Time Over the Network	87.9	95.4
Respondent Interacted All or Most of the Time Over the Network	67.8	57.4
Attended Distance Taught Class All or Most of the Time	90.6	100.0
Classes Are Interesting	81.8	91.2
More Courses Should be Taught Over the System	67.8	91.6
Prefer Face-to-face Teaching to Distance Teaching	74.2	47.5
Harder to Concentrate Than with Face-to-face Teaching	54.5	38.1

One point of discussion has been the usefulness of having a tutor present at each site during sessions. This, of course, adds to costs. Some courses did have tutors present during the sessions which allowed the collection of the information in Table 37.

Table 37. Comparison of Responses in the Presence and Absence of Tutors.

ITEM	% Agreement Tutor Present (N=109)	% Agreement Tutor Absent (N=77)
Equipment Comfortable to Use	94.7	90.1
Equipment Hinders Learning	13.7	21.9
Other Sites Interacted All or Most of the Time Over the Network	77.8	60.4
Respondent Interacted All or Most of the Time Over the Network	73.6	40.8
Attended Distance Taught Class All or Most of the Time	100.0	95.9
Classes Are Interesting	91.0	87.3
More Courses Should be Taught Over the System	90.8	80.9
Prefer Face-to-face Teaching to Distance Teaching	35.6	72.9
Harder to Concentrate Than with Face-to-face Teaching	27.1	56.7

The presence of a tutor in the classroom does make some difference but it is not enormous, and as the system matures this may be reduced. It is very clear that the students can manage this form of distance teaching but there may well be separate needs for different courses.

FACULTY RESPONSE

Early faculty response was cautious if not skeptical. There was concern that the UWIDITE students would cover less material than in a lecture situation, and that the lack of contact with the teachers to provide guidance after class would reduce the amount and quality of the learning, and that the students would not read sufficiently widely. As the programme developed, however, confidence in the validity of the method grew, and the Faculty of Education in particular have become strong supporters of interactive distance teaching. There is, indeed the suggestion that the certificate programmes be offered only by distance teaching.

There is now general acceptance within UWI of interactive distance teaching as a useful tool; this is the more impressive because it comes in spite of many difficulties and from a wide cross section of teachers. Certainly no faculty member who became involved in the programme has withdrawn for any reason other than relocation to a country outside the UWIDITE network.

RESPONSE FROM THE MINISTRIES

Ministers and officials have recorded their appreciation of and high expectations for UWIDITE. The countries not yet on line have urged that they be included and expansion is one of the priorities. UWIDITE is seen as a mechanism which will allow the aggregation of units into more economic sizes, encourage the sharing of human resources, and help to overcome many of the problems of isolation. This last is important as the "brain drain" from the smaller to the larger Caribbean countries, and from the rural to urban environment within any one country is very significant. Certainly our experience to date has been that the programmes offered to professionals have had as a large component of their success the aspect of being able to meet colleagues and share experiences by teleconferencing.

NATIONAL AND INTERNATIONAL RESPONSES

UWIDITE is now well known within Jamaica and has participated by invitation in several exhibitions and seminars as shown in Table 38.

Table 38. Exhibitions and Seminars in which UWIDITE Participated.

Date	Title	Organization
May 15-17 1983	First Caribbean Telecommunications Conference	Caribbean/Central American Action
Nov 28-Dec 2 1983	Libraries and Information: Technology at Work	NACOLADS
April 9, 1984	Opening Session, Sixth Management Committee Meeting, PCDPPP	Office of Disaster Preparedness
Feb 28, 29, 1985	Telematique	French Embassy
May 5, 1985	The State of the Media	CARICOM/CARIMAC/FES
Oct 2, 1985	Closing Ceremony for Caribbean training course on "Initial Processing of Agricultural Products at the Farm and Community Levels"	Ministry of Agriculture

The response from the international community has been gratifying. UWIDITE is attracting a good deal of attention overseas; it is mentioned in many publications; requests for information are constantly being processed and the staff have made several presentations at international conferences in the U.S.A. (including Hawaii), England, Africa, and India.

SOME GENERAL POINTS

Although the following adds nothing new to the body of knowledge about distance teaching administration it seems worthwhile to record as part of the experience of UWIDITE. The response to, and the success of a programme depends very much on:

- the quality of the administrative arrangements made for the programme;
- the provision of suitable supporting material;
- the technical performance of the network.

The second and third have been dealt with at length, administration will be dealt with briefly below.

Administration

It is useful to identify one person from the outset for each major programme to be responsible for: programme planning, material development, recruitment, registration, and evaluation - storage and retrieval of information and statistics - and, of course, co-ordination. Central registration helps simplify administration greatly.

The role of the local co-ordinator is vital. There is, as would be expected, quite high correlation between the success of UWIDITE in a particular site and the efforts made by the persons involved in its organization.

CHAPTER VIII

CONCLUSIONS

It is doubtful that any human endeavor has equalled the growth rate of communications in which the capability on the average has been doubling every four years. Were INTELSAT's present rate of growth to continue, by 2025 the network alone could handle 130 billion telephone calls simultaneously, this is more than ten times the estimated population of the Earth at that time. Though not particularly significant this extrapolation does give some indication of the extent to which new services, data transmission, teleconferencing, and other applications could be possible. An enormous telecommunications capacity could be available. Moreover, the computer is really only one third of a century old so no doubt the growth trends and symbiosis will continue for many more years.

Even discounting the enthusiasm there often is for novelty, it is hard to see how the new technologies can fail to have a very large impact for good on many aspects of education. By the mid 1990s the delivery of education and training by telecommunications could be a mature enterprise. Education could then be delivered world wide from any point. Continuing education may be as important then as formal education is today, and more than ever there will be competition for students and the minds of people. This could mean that unless the developing regions can deliver the education required by its peoples, the 21st century could present a situation in which our students are trained from distant lands and give rise to much more than the cultural invasions due to satellite television which some people are so worried about today.

It already seems proven that telecommunications will allow the aggregation of units across the Caribbean into more economic sizes; encourage the sharing of human resources; and help to overcome many of the problems of isolation. This last may help reduce the "brain drain" from the smaller to the larger Caribbean countries. Certainly the experience to date has been that the programmes offered to professionals have had as a large component of their success, the aspect of being able to meet colleagues and share experiences by teleconferencing. The concept of interactive distance teaching in the Caribbean seems well founded; the technology is available; the need seems proven. There seems every reason why the same should apply in many other regions. It is against this background that the Caribbean experiment must be judged.

The immediate objectives of UWIDITE as agreed with AID were to:

(1) demonstrate that a sufficient level of demand exists to support an operational system;

(2) create within UWI an interest towards meeting identified demands by teleconferencing so that the institution will incorporate these as part of it's armoury;

(3) establish a core of experience and of experienced workers to allow the efficient design, staffing and implementation of a fully operational system for distance teaching and outreach;

(4) help to develop mechanisms and expertise for the production of educational materials e.g. print, audio, and audio-visual materials;

(5) develop a proposal for a permanent service.

In the short time since the first teleconference in March 1983, UWIDITE has gone a far way in meeting the above objectives. It has conducted distance teaching programmes for community aides, technicians, teachers, nurses, university undergraduates, professionals of various disciplines including nurses and doctors, with success. UWIDITE has also introduced the West Indian community to the use of teleconferencing and not only a large portion of the University community but many others, government ministers and officials, agriculturalists, etc., have now had hands on experience. Even in the countries in which it does not yet operate it has had some impact, and these, including the United States Virgin Islands, hope to join the network.

It has extended valuable expertise located in the different islands beyond geographical boundaries; already contributed significantly to the pool of trained persons in several disciplines, some of whom would not have received this training otherwise; and it has also been a valuable administrative tool in a number of ways including medical patient care.

The number and variety of programmes; the increasing number of programmes being developed in direct response to requests from governments or organizations in the countries on the network; the numbers of participants; and the extent of usage during term time; and the keenness of the other countries to join the system show clearly that a real demand exists to support an operational system. Indeed, an expansion of the present system is indicated. The first objective has clearly been fulfilled.

The second objective likewise has been met. UWIDITE is now accepted, by staff as well as the University Council, as part of the University's operations, and has been funded as such even at a time when the shortage of funding for University Centre operations is critical. It is now part of the University's armoury.

The third objective has not been fully met. Over fifty members of staff use the system on a regular basis and these numbers will grow, so that at the user level there is growing experience; at each site there is a number of experienced persons for day to day system operation. The technical areas are the weakest, as it has proven extremely difficult to employ and retain the people who are needed not merely for maintenance but for system improvements and the contributions they make to the general development of the programmes. Efforts are continuing to find staff and also to involve, more and more, the carriers in many aspects of the planning and operations. On the other hand the system is now fully operational for distance teaching and outreach.

As indicated in Appendix 1 UWIDITE has had considerable success in the production of educational materials. It has done so, however, by setting up its own internal mechanisms for print and audio-visual materials. The material has been well accepted by the UWIDITE students and is often purchased on campus as well. The campuses, however, all have various facilities for the preparation of educational materials and it is hoped that as the volume of production grows all these services will be rationalized. Mechanisms and expertise in these areas do not present any major problems.

The final objective, the development of a proposal for a permanent service, has been overtaken by events since UWIDITE seems already to be a permanent feature of the University's offerings. Nevertheless, a great deal has to be examined on matters such as scale, links with faculties and departments, outreach and training vs. programmes for university certification, intra-island links and a host of others. But these are internal matters and experience with the needs of the expanded system, which is expected shortly, and the requirements of those countries not now served by UWIDITE is needed before pronouncements are made, particularly since the details of funding mechanisms are still to be worked out.

The three year long experiment has had its share of disappointments and frustrations, but it has been a very worthwhile experience and those involved with UWIDITE can share pride in having introduced a very powerful technique to the educational system of the Caribbean. UWIDITE has:

- introduced well over one thousand persons in various categories to the power of modern telecommunications;

- provided a completely new training option for the Caribbean;

- transformed the quantity and quality of outreach, consultation and services that the University and other regional institutions can provide;

- improved many aspects of the University's administration, outreach and operations.

UWIDITE has already made an enormous impact in the Caribbean. It has won full acceptance and is the repository of many hopes. With the recent restructuring of the UWI, UWIDITE has become an even more valuable asset and recognizing this, the University has provided financing for its continuation through the triennium. One measure of the public recognition it has won was the receipt of the Gleaner Honour Award for 1984 which describes UWIDITE as:

"likely to have a most dramatic impact on the quality and improvement of life not only in Jamaica but the entire Caribbean, enhancing the education of the people of the region."

And indeed if educators, the telecommunications companies, and the governments can rise to the challenges and harness the new technologies to make education cheaper, more available, and of better quality; if we can reduce the loneliness of professional isolation and therefore one reason for the brain drain, an educational tool of superb value would have been developed.

Appendix 1. List of Print Units and Video Cassettes Produced by UWIDITE

PRINT UNITS

Agriculture

INTEGRATED PEST MANAGEMENT, Ajai Mansingh and Joseph Suah, 57 pages.

Distance Teaching

HINTS FOR DISTANCE TEACHERS, Hilary Brown, Keith Manison, Christine Marrett, Vilma McClenan, and Lilieth Nelson, 93 pages.

Education

ARGUMENT ANALYSIS, Edward Brandon, 130 pages.

CURRICULUM DEVELOPMENT, Zellyne Jennings, 60 pages.

EDUCATION AND SOCIAL DEVELOPMENT FOR UWIDITE STUDENTS, Trevor Turner and Pauline Sahoy, 85 pages.

EDUCATIONAL PSYCHOLOGY, Arthur Richardson and Aubrey Phillips, 168 pages.

THE TEACHING OF THE HEARING IMPAIRED; Madge Hall and Suzanne Maxwell, 168 pages.

TEACHING INTEGRATED SCIENCE, Florence Commissiong and Lorna Sue-Ho, 68 pages.

THE TEACHING OF MATHEMATICS, Paul Ernest, 459 pages.

THE TEACHING OF READING, Sam Myres, 220 pages.

Social Sciences

INTRODUCTION TO ACCOUNTING, Uriel Salmon, 120 pages.

ENERGY MANAGEMENT, G. C. Lalor, M.Witter, J.Cumper, E. Alexander, D. Radlein, H. Peter, and S. Marston, 225 pages.

ELEMENTS OF ECONOMICS, Frank Alleyne, Michael Howard, and Wendell Samuels, 168 pages.

HISTORY OF THE CARIBBEAN FOR UWIDITE STUDENTS, Frank Taylor, 62 pages.

PERSONNEL MANAGEMENT AND INDUSTRIAL RELATIONS, Carl Roberts and Carlyle Dunkley, 93 pages.

INTRODUCTION TO SOCIOLOGY, C. Branche, C. Harvey, R. Osuji, G. Williams, 112 pages.

Technician Training

LABORATORY MANAGEMENT, W. Bartley, H. Robotham, L. Nelson, and V. McClenan, 82 pages.

VIDEO CASSETTES

LABORATORY MANAGEMENT

Cleaning Apparatus	15 minutes
Weighing in the Laboratory	14 minutes
The Parts of the Microscope	8 minutes
Using the Microscope	8 minutes
Laboratory Arts	27 minutes

TEACHING OF THE HEARING IMPAIRED

Teaching the Hearing Impaired	35 minutes
Audiological Testing I	15 minutes
Audiological Testing II	9 minutes
Sign Language I	15 minutes
Sign Language II	6 minutes

GENERAL

UWIDITE and the Libraries	30 minutes
How to Survive in University	35 minutes

Appendix 2. List of Tables and Figures

Table		Page
1.	Some Country Indicators for the English Speaking Caribbean	1
2.	Examples of Normal Admission Requirements of Tertiary Institutions	3
3.	Student Numbers at UWI	4
4.	Estimated Costs per Student (Economic Costs) by Faculty and Campus for 1985/86	7
5.	Equipment and Approximate Costs	17
6.	UWIDITE Training Programmes	22
7.	Outline of the Arts Symposium	30
8.	Course Content of Principles of Training	31
9.	Numbers of Participants and Certificates Awarded in CLAC Training Course	33
10.	Modules Developed for the Laboratory Technicians Course	34
11.	Numbers of Participants in Laboratory Technicians Courses by Site	35
12.	Overall Examination Results for Laboratory Technicians Programme	36
13.	Summary of Use of UWIDITE for Agriculture-Related Topics	38
14.	Number of Participants in Course on Emergency Health Management After Natural Disasters	41
15.	Undergraduate Review Sessions in Fertility Management	44
16.	Outline of Postgraduate Review Programme in Fertility Management	45
17.	Student Numbers in Postgraduate Review Programme in Fertility Management (November 1984)	45
18.	Student Numbers in Fertility Management Programmes	47
19.	Student Numbers in Nutrition Courses	48
20.	Content and Presenters of Nutrition Course for Community Workers	49

21. Faculty of Social Sciences Offerings 51

22. Origins and Enrolments of UWIDITE Social Science Courses 54

23. Examination Results for Social Sciences, 1983/84 55

24. Examination Results for Social Sciences, 1984/85 56

25. Topics for Law Tutorials 58

26. Tutors Involved in the Delivery of the Certificate in Education Programmes, 1983-1985 60

27. Student Numbers in Certificate in Education Programmes 61

28. Summary of Registrations by Specialty in the Certificate in Education 62

29. Numbers of UWIDITE Certificates in Education Awarded at First Sittings to UWIDITE Students 62

30. Territorial Distribution of Awards of Certificates in Education 63

31. Age Distribution of Students in the Certificate in Education Programmes 63

32. Summary of Registrations by Country for the UWIDITE Certificate in Education During the Period 1983-1985 64

33. Economic and Maintenance Costs for the Full-time Certificate in Education Programme 64

34. Student Numbers in Certificate in Education Programmes and Total Economic Costs Plus Maintenance 65

35. Usage and Hourly Cost of UWIDITE 67

36. Comparison of Undergraduate and Other Students on System Acceptance 73

37. Comparison of Responses in the Presence and Absence of Tutors 74

38. Exhibitions and Seminars in which UWIDITE Participated 75

Figure

1. ORGANIZATIONAL Structure of UWIDITE 15

2. Proposed UWIDITE network 69